



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

EPA Region 5 Records Ctr.



330328

MAY 12 1994

REPLY TO THE ATTENTION OF:

CS-3T

BY TELEFAX AND  
FEDERAL EXPRESS

Mark Murphy  
CSX Transportation, Inc.  
500 Water Street  
Speed Code: J-275  
Jacksonville, FL 32202

Re: Columbus Scrap Site, Columbus, Ohio  
U.S. EPA Statement of Position

Dear Mr. Murphy:

In response to the Statement of Position of Columbus Scrap Corporation and CSX Transportation, Inc., received by the United States Environmental Protection Agency (U.S. EPA) on May 2, 1994, please find enclosed U.S. EPA's Statement of Position.

Pursuant to the Administrative Order on Consent, U.S. EPA will maintain an administrative record of this dispute, including the written notification of the dispute and the Statements of Position. The Director of the Waste Management Division, U.S. EPA, Region 5, shall issue a final decision and order resolving this dispute.

If you have any questions or comments please do not hesitate to call me at (312) 886-6842.

Sincerely,

Mony Chabria  
Assistant Regional Counsel

cc: Steven L. Renninger, OSC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V

IN THE MATTER OF	)	
	)	DOCKET NO. V-W-91-C-095
Columbus Scrap Corporation	)	
	)	
RESPONDENTS:	)	
	)	
Columbus Scrap Corporation	)	
CSX Transportation, Inc.	)	
	)	

U.S. EPA'S STATEMENT OF POSITION IN RESPONSE TO  
RESPONDENTS' DEMAND FOR DISPUTE RESOLUTION PURSUANT TO  
PARAGRAPH 36 OF THE ADMINISTRATIVE ORDER BY CONSENT

The United States Environmental Protection Agency ("U.S. EPA") Region 5 hereby sets forth its Statement of Position in accordance with Paragraph 36 of the Administrative Order by Consent ("AOC") attached as Exhibit A to this Statement of Position. This Statement of Position is filed in response to Respondents' Statement of Position contesting U.S. EPA's Approval with Modifications of Respondents' Work Plan.

**I. BACKGROUND**

The Columbus Scrap Site ("Site") is an operating commercial scrap yard located at 580 Furnace Street in Columbus, Ohio. The Site is operated by Columbus Scrap Corporation ("CSC"). CSX Transportation ("CSXT"), as owner, has leased the Site to CSC since 1985. Between May 25, 1989 and June 8, 1990, Site soil sampling results obtained by Ohio EPA ("OEPA") and CSC documented the presence of 1,000 ppm to 110,000 ppm Polychlorinated Biphenyls ("PCBs"). CSC conducted two partial cleanups of the Site during 1990. On September 13, 1990, U.S. EPA issued a

General Notice of Potential Liability to CSC and CSXT. (See Ex. A, pp.2-3).

Following a December 17, 1990, meeting among representatives of CSC, CSXT, and U.S. EPA Region 5, an Administrative Order by Consent ("AOC") was issued. The effective date of the AOC is April 10, 1991. The AOC requires CSC and CSXT to conduct additional site contamination assessment and to ultimately treat or dispose of PCB-contaminated soil with greater than 25 ppm PCBs.

Pursuant to the AOC, Respondents' prepared a Site Characterization Work Plan, which was approved by U.S. EPA on June 10, 1991. Pursuant to this work plan, Respondents' conducted activities which included surveying the site, sector sampling, and construction of a fence around the site. Pursuant to the AOC, restricting site access raised the site clean up levels from 10 ppm to 25 ppm. However, Respondents also conducted activities which were outside the scope of this work plan. The most significant of these actions was excavation, stock piling and grading of approximately 15,000 cubic yards of soil identified as PCB-contaminated. This process began on February 5, 1992 and was completed on April 13, 1992. U.S. EPA was not consulted before this excavation, stock piling and grading of soils occurred. Respondents admit that U.S. EPA On-Scene Coordinator ("OSC") Steven L. Renninger was informed of the excavation and stock piling only after it began. (Resp. Ex. 4, p.4).

On November 17, 1992, U.S. EPA approved a Treatability Test for Remediation of PCB-Contaminated Soils Work Plan prepared by Respondents pursuant to the AOC. Under this work plan the Respondents were to evaluate remediation of PCB-contaminated soils utilizing white rot fungus as an option for full-scale remediation of the contaminated soils. During early 1993, a twenty week on-site treatability study was completed utilizing soil from the PCB-contaminated soil pile. Respondents submitted a Final Report on the Treatability Test for Remediation of PCB-Contaminated Soils ("Final Report") on July 30, 1993. (Resp. Ex. 1). Although the Final Report noted that the Treatability Study did not demonstrate that the addition of wood chips and inoculation with white rot fungus stimulated PCB degradation, the Final Report concluded that bioremediation of the PCB-contaminated soils on site was possible and practical. (Resp. Ex. 1, p.13-14).

In order to properly evaluate the treatability study, OSC Renninger was assisted by the U.S. EPA Region 5 PCB Compliance Section and the Office of Research and Development, Risk Reduction Engineering Laboratory ("RREL").<sup>1</sup> RREL, as part of the Superfund Innovative Technology Evaluation ("SITE") Program, evaluates emerging alternative technologies and in 1992 was evaluating a similar white rot fungus project in Region 4. In a September 30, 1993 letter (Resp. Ex. 2), OSC Renninger described

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<sup>1</sup>Correspondence from Kim Kreiton of RREL to OSC Renninger not specifically referred to in this Statement of Position are contained in Exhibit I.

U.S. EPA's disagreement with the conclusions of the Final Report and disapproval of full-scale bioremediation as a response activity at the Site. The letter requested that Respondents submit a new work plan to properly dispose of the PCB contaminated soil pile.

At the Respondents' behest, a meeting between CSC, CSXT, and U.S. EPA was held on October 15, 1993. At this meeting, U.S. EPA restated the concerns that had been described in the letter of September 30, 1993. Respondents requested an opportunity to submit a new proposal for a Work Plan, since a new Project Manager, James A. Novitsky of Kemron Environmental Services, had been appointed. U.S. EPA requested Respondents to evaluate the applicability of other alternative technologies to the site, including soil washing and dechlorination, prior to submitting a new proposal. Basically, U.S. EPA agreed to review a new proposal, provided that it was indeed a new proposal.

In an October 22, 1993 letter (Resp. Ex. 3), Mr. Novitsky provided his explanation of U.S. EPA concerns described in OSC Renninger's September 30, 1993 letter. In anticipation of the aforementioned new work plan, U.S. EPA made no response to this letter. On December 8, 1993, Respondents forwarded to U.S. EPA the Work Plan for Remediation of PCB-Contaminated Soils at the Columbus Scrap Site ("Work Plan," Resp. Ex. 4). The relevant portions of the Work Plan provided that Respondents would divide the 15,000 cubic yard PCB-contaminated soil pile into three categories: soils to be disposed of in a TSCA-approved landfill,

soils to be bioremediated, and soils on which no action would be taken.

Pursuant to Paragraph 2 of the AOC, U.S. EPA had the authority to approve, disapprove, require revisions, or approve with modifications the Work Plan. In a letter dated April 11, 1994, U.S. EPA notified Respondents' of its Approval with Modifications. (Resp. Ex. 5). This letter outlined briefly U.S. EPA's opinion that Respondents had not conclusively demonstrated the effectiveness of bioremediation on PCBs and that the dividing of the soils into three categories would violate the TSCA PCB Dilution Rule. Further, the letter modified the Work Plan to indicate that the entire PCB-contaminated soil pile is to be disposed off site in a TSCA-approved chemical waste landfill. In response to this letter, Respondents, by a letter dated April 25, 1994, provided written notice of their invocation of the dispute resolution provisions of the AOC. Respondents submitted their Statement of Position ("SOP") to U.S. EPA on May 2, 1994.

## **II. ISSUES PRESENTED**

According to Respondents' SOP, there are two issues in dispute:

- 1) whether Respondents have demonstrated that PCB-contaminated soils at the Site can be successfully bioremediated; and

- 2) whether the proposal to resample the soil pile and categorize it into three groups complies with the TSCA PCB dilution rule.

### III. DISCUSSION

#### Bioremediation

Successful remediation of the Site first requires the resolution of the long-time dispute between Respondents and U.S. EPA concerning the ability of the PCB-contaminated soils at the Site to be bioremediated.

Before turning to the specific points raised by Respondents in their SOP, an examination of U.S. EPA guidelines concerning bioremediation of PCBs would be helpful. The U.S. EPA PCB Update, April 1994 issue (Ex. B), summarizes U.S. EPA, Office of Pollution Prevention and Toxics, Chemical Control Division, position regarding the successful demonstration of bioremediation as an alternative method of disposal of PCBs. The Update explains that many laboratory studies show that bioremediation is successful, while, in the field, the process is partially or completely unsuccessful. Therefore, "EPA requires that a company devise a strategy that will demonstrate as unequivocally as possible that biodegradation has taken place and that the PCB molecule has not simply volatilized, sorbed, transported, or attenuated by some other nonbiological or "abiotic" reaction." (Ex. B, p.13). U.S. EPA conclusions regarding this Site are based on the idea that Respondents have not unequivocally demonstrated in their studies that biodegradation of PCBs has taken place. This will become evident as Respondents' position is examined below.

Respondents' position is that Respondents' Project Manager, Mr. Novitsky, addressed U.S. EPA concerns about the Final Report. In fact, Respondents' state "...the Novitsky submission demonstrated that the points [U.S. EPA] had raised for reasons to doubt the viability of bioremediation were essentially irrelevant." (Resp. SOP, p.3). It is U.S. EPA's position that Mr. Novitsky did not address all the reasons for doubting "the viability of bioremediation" of PCB-contaminated soils, and those that he did address were not demonstrated to be irrelevant.

U.S. EPA expressed doubt regarding bioremediation in a letter of September 30, 1993 to Respondents after review of the Final Report. In the letter, OSC Renninger agreed with the following Final Report conclusions made by Respondents' consultants, Kemron Environmental Services:

1. There is scatter and variability in the data (Resp. Ex. 1, p.10);
2. When wood chip addition was made to each pile the PCBs in the soil were diluted to some extent (p.11);
3. The laboratory study found that addition of white rot fungi would further stimulate the PCB degradation in site soils, but there is too much variation in the pilot study data to confirm this (p.12); and
4. This study did not demonstrate that the addition of wood chips and inoculation with white rot fungus stimulates PCB degradation (p.13).

Kim Lisa Kreiton of the U.S. EPA, Office of Research and Development, Risk Reduction Engineering Laboratory and Scott Cooper of the U.S. EPA TSCA PCB Control Section also participated in the review of the Final Report. Ms. Kreiton's opinion was submitted as an attachment to the correspondence. She found that



the Final Report data did not conclusively demonstrate bioremediation of PCBs. Her disapproval of the Final Report focused on the "large level of uncertainty ...associated with KEMRON's data." Observations noted by OSC Renninger and Ms. Kreiton included:

1. Many Week 20 samples exhibited higher PCB concentrations than Week 10 samples and the concentrations increased and decreased throughout the study;
2. Surrogate sample recoveries are low resulting in a possible bias in reported PCB concentrations; and
3. Major differences exist in the concentrations reported on split samples by Kemron as opposed to U.S. EPA Technical Assistance Team (TAT).<sup>2</sup>

Additionally, OSC Renninger provided Respondents with the position of the PCB Control Section that the "(p)roven disposal methods that apply to the PCB contaminated soil pile at Columbus Scrap include off-site incineration or landfill at a TSCA permitted facility." (Resp. Ex. 2, p.2)

Respondents' SOP summarizes the explanations provided by Mr. Novitsky in reply to the September 30, 1993 letter. Initially, Mr. Novitsky's response, as an explanation, indicates that scattering and variability is inherent in this type of data. It is U.S. EPA's position that this variability, however, is one

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<sup>2</sup>An additional observation of Ms. Kreiton, not discussed in the September 30, 1993 letter, is that Kemron's data indicated that the treatability study control pile did not function as a control pile. In fact, the concentrations in the control pile were approximately the same as those in one of the test piles. (May 9, 1994, Memorandum of Kim Kreiton, Exhibit C, p.2).

factor that has prevented Respondents from demonstrating successful bioremediation of PCBs.<sup>3</sup>

Additionally, Respondents suggest that Mr. Novitsky demonstrated that Week 20 sample results were higher than Week 10 sample results because the degradation stopped after 10 weeks and that half of all measurements after that time would be greater than the mean and half less. Finally, the SOP states that Mr. Novitsky demonstrated that "the difference in [split] sample results could be accounted for more by the fact that all the samples were low in magnitude than having any significant physical meaning." (Resp. SOP, p.3) However, closer examination of Mr. Novitsky's letter, as opposed to the summary presented by the SOP, indicates that Mr. Novitsky has not demonstrated these points, but merely stated them as a possible explanation for unfavorable data. There is no proof that the statements of Mr. Novitsky are or are not valid. Without this proof, the Final Report data is inconclusive at best and must be taken as supportive of the view that Respondents have not unequivocally demonstrated biodegradation of PCBs. (See Ex. C).

A final point regarding bioremediation that must be noted concerns a statement in Respondents' SOP that a careful review of Ms. Kreiton's August 3, 1993 memo (Attachment to Resp. Ex. 2) indicates that "even U.S. EPA agrees there has been a substantial

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<sup>3</sup>It should be noted that Mr. Novitsky's letter does not provide any explanation for the remaining three Kemron Final Report conclusions, listed above, that were agreeable to OSC Renninger.

reduction in PCB mass and concentration." Apparently, Respondents' careful review caused them to overlook the direct meaning of the final paragraph of Ms. Kreiton's memo. Until the final paragraph, Ms. Kreiton merely described the data and her observations in reviewing the data. The final paragraph presents her opinion on the Final Report in no uncertain terms. It is her opinion that a large level of uncertainty was associated with the data for numerous reasons and that Kemron had not conclusively demonstrated bioremedial effects (Att. to Resp. Ex. 2, p.3).

Ms. Kreiton's January 6, 1994 memorandum to OSC Renninger (Ex. C) is additional evidence of her disagreement with the idea that biodegradation of PCBs was demonstrated in the Final Report. In the memo, Ms. Kreiton was categorically opposed to the assertion that bioremediation had been shown in the laboratory and field studies at the Site. She also described the bioremediation scheme as "an example of over-simplification which may set a dangerous precedent in Region V and throughout the EPA." (Ex. C, p.3). Ms. Kreiton reiterated her beliefs in a May 9, 1994, memorandum to OSC Renninger. (Ex. D)

In conclusion, there is no merit to Respondents' claim that preventing them from pursuing bioremediation must be viewed as arbitrary and capricious. U.S. EPA has been quite patient while Respondents have attempted to show effective bioremediation. However, for the reasons outlined above, Respondents have not been able to "unequivocally demonstrate successful biodegradation" as required by the TSCA guidelines. Mr.

Novitsky's October 22, 1993 letter fails to resolve the concerns of U.S. EPA personnel regarding the effectiveness of a bioremediation scheme at the Site. The U.S. EPA Approval with Modifications of the Work Plan to require that Respondents dispose of the PCB-contaminated soils in a TSCA-approved landfill can not be viewed as arbitrary and capricious.<sup>4</sup>

#### PCB Dilution Rule

The second issue of contention presented by Respondents' SOP concerns the TSCA PCB dilution rule, 40 CFR § 761.1(b), which states that no provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise provided. According to Scott Cooper of the U.S. EPA TSCA PCB Control Section, under this rule, clean soil which is placed in a container or pile with TSCA regulated soil also becomes regulated for TSCA disposal. If PCB contaminated materials having different TSCA disposal requirements are placed in a common container or pile, the dilution rule would require that all of the material be disposed of in accordance with the most stringent TSCA disposal requirement. (Memoranda of Scott Cooper, Ex. E and F).

As noted in the above background section, Respondents excavated, stock piled, and graded approximately 15,000 cubic

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<sup>4</sup>It is also of note that previous attempts to show bioremediation of PCBs have not been successful. Attached as Exhibit B, p.11, and Exhibit H are descriptions of sites similar to Columbus Scrap on which PCB-contaminated soils eventually were disposed of in a TSCA-approved landfill after efforts to bioremediate them proved unsuccessful.

yards of PCB-contaminated soil without the prior approval of U.S. EPA. In order to be certain that all contaminated soils were removed, Respondents over-excavated the contaminated areas. Once the soils were staged in a stock pile, the PCB dilution rule requires that all of the soil in the pile be disposed of in accordance with the requirements for the highest concentration soils.

Respondents' Work Plan proposed to segregate the soil pile into the following categories: not to be treated, suitable for bioremediation, and appropriate for TSCA landfill. (Resp. Ex. 4, p.8-9). This procedure does not comply with the PCB dilution rule. Since the most stringent requirement for soil in this pile is disposal in a TSCA-approved landfill, all of the soil in the pile must be disposed of in this manner.

Therefore, the April 11, 1994 U.S. EPA Approval with Modifications of the Columbus Scrap Remediation Work Plan indicated to Respondents that their proposal to resample the soil stock pile and characterize the soils into three groups would violate the PCB dilution rule. The correspondence also modified the work plan so that all the soil would be disposed of in a TSCA-approved landfill. U.S. EPA intended merely to bring the work plan in compliance with the PCB dilution rule. This can not be viewed as arbitrary and capricious.

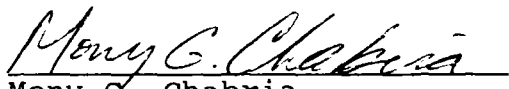
Respondents' SOP indicates that U.S. EPA failed to explain how the Work Plan provisions would violate the PCB dilution rule. It is U.S. EPA's position that Respondents' environmental experts

should have understood this concept. The idea that one may not mix clean soil with PCB-contaminated soil, and then suggest that the clean soil should be returned to its original location, does not appear to be a complex one. However, if the Respondents did not understand, in any way, the April 11, 1994 Approval with Modifications, U.S. EPA had provided the telephone numbers of OSC Renninger and Assistant Regional Counsel Mony Chabria. Instead of contacting these persons, though, Respondents chose to seek formal dispute resolution.

#### IV. CONCLUSION

Based on the above discussion, it is the position of the U.S. EPA that the Respondents to the Administrative Order on Consent for the Columbus Scrap Site be ordered to begin work based on the Work Plan as approved with modifications by the U.S. EPA on April 11, 1994.

Respectfully submitted,

  
Mony G. Chabria  
Assistant Regional Counsel


  
Steven L. Renninger  
On-Scene Coordinator

**CERTIFICATE OF SERVICE**

I certify that the foregoing Statement of Position of the U.S. EPA was served by telefax and by Federal Express, and was addressed to:

Mark Murphy  
CSX Transportation, Inc.  
500 Water Street  
Speed Code: J-275  
Jacksonville, FL 32202

On this 12th day of May, 1994.

  
\_\_\_\_\_  
Mony G. Chabria  
Assistant Regional Counsel

**EXHIBIT A**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
230 SOUTH DEARBORN ST.  
CHICAGO, ILLINOIS 60604

APR 09 1991

REPLY TO ATTENTION OF:  
5HS-12

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Re: Columbus Scrap Site

Dear Sir:

Enclosed please find an executed copy of the Administrative Order by Consent issued for this site pursuant to Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. Sections 9601 et seq. Thank you for your cooperation in this matter.

If you have any questions regarding this Order, please contact Alvin Liebling Assistant Regional Counsel, at (312) 886-6842 or Steven Renninger On-Scene Coordinator, at (216) 942-7260.

Sincerely yours,

A handwritten signature in cursive script that reads "David A. Ullrich".

David A. Ullrich, Director  
Waste Management Division

Enclosure

cc: Deputy Director, Ohio Environmental Protection Agency  
Alvin Liebling, ORC Attorney  
Steven Renninger, OSC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V

IN THE MATTER OF:	)	Docket No. V-W- '91 -C- 095
	)	
Columbus Scrap Corporation	)	ADMINISTRATIVE ORDER BY
	)	CONSENT PURSUANT TO
	)	SECTION 106 OF THE
	)	COMPREHENSIVE
Respondents:	)	ENVIRONMENTAL RESPONSE,
	)	COMPENSATION, AND
	)	LIABILITY ACT OF 1980
Columbus Scrap Corporation	)	as amended, 42 U.S.C.
CSX Transportation, Inc.	)	Section 9606(a)
	)	
	)	

PREAMBLE

The United States Environmental Protection Agency (U.S. EPA), Columbus Scrap Corporation and CSX Transportation, Inc. (Columbus Scrap and CSX), Respondents, have each agreed to the making and entry of this Order by Consent.

It is issued pursuant to the authority vested in the President of the United States by Sections 106(a) and 122 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 (CERCLA), and delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Assistant Administrator for Solid Waste and Emergency Response and the Regional Administrators by U.S. EPA Delegation Nos. 14-14, 14-14-C and 14-14-D, and to the Director, Waste Management Division, Region V, by Regional Delegation Nos. 14-14-A, 14-14-C and 14-14-D.

A copy of this Order will also be provided to the State of Ohio, which has been notified of the issuance of this Order as required by Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a).

This Order requires the Respondents to undertake and complete emergency removal activities to abate conditions which may present an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of hazardous substances at the site.

FINDINGS

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds:

1. The Columbus Scrap site (Facility) is an operating scrap facility located at 580 Furnace Street in Columbus, Franklin County, Ohio. The area is zoned for industrial use. It is approximately six (6) acres in size. See Attachment A, drawing.
2. CSX, as owner, leased the Facility property to Columbus Scrap beginning in 1985.
3. On May 25, 1989, Ohio EPA (OEPA) as authorized by the U.S. EPA TSCA Program conducted an inspection of the Facility. Inspectors noted eight large capacitors and visible soil contamination during the site walkthrough. A soil sample obtained by OEPA during the inspection documented the sample to contain 1,000 ppm Polychlorinated Biphenyl (PCB) 1242.
4. On February 23, 1990, OEPA and Chemical Waste Management, contracted by Columbus Scrap, obtained split soil samples at the Facility based on a grid sampling plan of the capacitor area. Composite soil samples analyzed by OEPA's contracted laboratory indicated the presence of 8,700 ppm PCB.
5. In correspondence of Bricker & Eckler to U.S. EPA, dated June 8, 1990, Columbus Scrap sampling results prior to two (2) partial cleanups of PCB by Columbus Scrap indicated surface soil contamination at capacitor locations up to 110,000 ppm PCB.
6. On July 27, 1990, the U.S. EPA Technical Assistance Team (TAT) conducted a site assessment at the Columbus Scrap Facility after the first of the two (2) partial cleanups. Soil samples were then obtained from two (2) of five (5) PCB capacitor locations where the first partial cleanup had occurred, as well as four (4) random locations outside of the capacitor areas. The soil sample laboratory results indicated the capacitor areas contained up to 108 ppm PCB and the random locations contained soil concentrations up to 279 ppm PCB.
7. The second partial cleanup of the PCB capacitor locations was conducted by Columbus Scrap after the TAT site assessment. The results of this cleanup have not been confirmed by U.S. EPA. A report documenting this partial cleanup was submitted to the U.S. EPA TSCA program on October 24, 1990.

8. PCB's have been shown to produce a variety of adverse effects in studies of aquatic organisms and experimental animals. Such effects are related to the dose of PCB's received, a higher dose producing a greater effect. Effects of PCB's observed in experimental animals include: weight loss, liver injury, atrophy of lymphoid tissue, with suppression of immune response, reproductive impairment (such as infertility and low birth rate), carcinogenicity, and death.
9. Persons exposed to PCBs can develop chloracne, and based on laboratory animal data, there is potential for reproductive effect and developmental toxicity, as well as oncogenicity in humans exposed to PCB's. PCB's are very stable compounds, which can persist for years when released into the environment. Based upon documented health impacts on humans and experimental results with laboratory animals, PCBs are a suspected human carcinogen.
10. Except for the front of the Facility, the facility was observed to be unsecured, without fences, walls, gates or other access restrictions apparent.
11. On September 13, 1990, U.S. EPA issued a General Notice of Potential Liability to the Potentially Responsible Parties: Columbus Scrap Corporation, Gary Reynolds, Vice President, and CSX Transportation Company.

#### DETERMINATIONS

Based on the foregoing Findings, U.S. EPA has determined that:

1. The Columbus Scrap site is a "facility", as defined by Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9).
2. Each Respondent is a "person", as defined by Section 101(21) of CERCLA, 42 U.S.C. Section 9601(21).
3. Each Respondent either arranged for disposal or transport for disposal of hazardous substances at the Columbus Scrap Facility, or is a past or present owner or operator of the Facility. Each Respondent is, therefore, a liable person under Section 107(a) of CERCLA, 42 U.S.C. Section 9607.
4. PCB's are "hazardous substances", as defined by Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14).
5. PCB contaminated soil constitutes an actual or threatened "release", as that term is defined in Section 101(22) of CERCLA, 42 U.S.C. Section 9601(22).

6. The actual or threatened release of hazardous substances from the Facility may present an imminent and substantial endangerment to the public health, welfare, or the environment.

7. The actions required by this Order, if properly performed, are consistent with the National Contingency Plan (NCP), 40 CFR Part 300, as amended, and CERCLA; and are reasonable and necessary to protect the public health, welfare and the environment.

8. The conditions present at the Facility constitute a threat to public health or welfare or the environment based upon consideration of the factors set forth in the NCP, Section 300.415(b)(2). These factors include, but are not limited to, the following:

- a. actual or potential exposure to hazardous substances by nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

This factor is present at the Facility due to the existence of PCB contaminated soil at levels above 50 ppm. Prior to the first partial cleanup, PCB soil concentration at a capacitor location was documented at levels up to 8,700 ppm. Unrestricted access to areas documented as PCB contaminated exist, creating a potential exposure pathway.

- b. high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;

This factor is present at the Facility due to the existence of PCB contaminated soils at levels up to 8,700 ppm. Soil sampling at the Facility has documented contamination at the surface and to a depth of approximately two feet at several locations.

#### ORDER

Based upon the foregoing Findings and Determinations, and pursuant to Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a), it is hereby ordered, and Respondents hereby agree that Respondents will undertake the following actions at the Facility:

1. Within thirty (30) calendar days after the effective date of this Order, the Respondents shall submit to U.S. EPA for approval, a Work Plan to determine the extent of PCB and other hazardous soil contamination at the Columbus Scrap Facility. The Work Plan shall provide a concise description and schedule of the activities to be conducted to comply with the requirements of this Order. The Work Plan shall be reviewed by U.S. EPA, which may approve, disapprove, require revisions, or approve with modifications the Work Plan. Respondents shall implement the Work Plan as finally approved by U.S. EPA, including any modifications. Once approved, the Work Plan shall be deemed to be incorporated into and made a fully enforceable part of this Order.

2. Within thirty (30) calendar days of completion of the field work in the soil contamination investigation required by the approved Work Plan under the immediately preceding Paragraph 1, the Respondents shall submit to U.S. EPA a report regarding the site characterization which incorporates response activities required to remove, dispose and/or remediate all PCB and other hazardous soil contamination identified in the report. The PCB cleanup level of the remedy selected shall be consistent with the provisions of 40 CFR Part 761, Subpart G. The report shall be reviewed by U.S. EPA, which may approve, disapprove, require revisions, or approve with modifications the report. Within fourteen (14) calendar days of final approval of the report, the Respondents shall submit a Work Plan based on the approved report. The Work Plan shall provide a concise description and schedule of the activities to be conducted to comply with the requirements of the approved report. The Work Plan shall be reviewed by U.S. EPA, which may approve, disapprove, require revisions, or approve with modifications the Work Plan. Once approved, the Work Plan shall be deemed to be incorporated into and made a fully enforceable part of this Order.

3. Each of the above Work Plans shall contain a site safety and health plan and a sampling and analysis plan. The site safety and health plans shall be prepared in accordance with the Occupational Safety and Health Administration (OSHA) regulations applicable to Hazardous Waste Operations and Emergency Response, 29 CFR Part 1910. The Work Plans and other submitted documents shall demonstrate that the Respondents can properly conduct the actions required by this Order.

4. Respondents shall retain a contractor qualified to undertake and complete the requirements of this Order, and shall notify U.S. EPA of the name of such contractor within five (5) business days of the effective date of this Order. The Respondents shall notify U.S. EPA of the name of subcontractors hired to perform the removal activities ordered in Paragraph 2 above no less than five (5) days in advance of commencing each activity. U.S. EPA retains the right to disapprove of any, or all, of the contractor and/or subcontractors retained by the Respondents. In the event U.S. EPA disapproves of a selected contractor and/or subcontractor, Respondents shall retain a different contractor and/or subcontractor to perform the work, and such selection shall be made within seven (7) calendar days following U.S. EPA's disapproval for a subcontractor substitution and fourteen (14) calendar days for a contractor substitution.

5. Within ten (10) calendar days after U.S. EPA approval of each of the above Work Plans, Respondents shall commence to implement the Work Plan as approved or modified by U.S. EPA. Failure of the Respondents to properly implement all aspects of a Work Plan shall be deemed to be a violation of the terms of this Order.

6. All materials removed from the Columbus Scrap Facility shall be disposed of or treated at a facility approved by the On-Scene Coordinator (OSC), which approval shall not be unreasonably withheld, and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. Section 6901, et seq., as amended, the U.S. EPA Revised Off-Site Policy, and all other applicable Federal, State, and local requirements.

7. Within fifteen (15) calendar days after the effective date of this Order, the Respondents shall designate a Project Coordinator. The U.S. EPA has designated Steven Renninger, of the Emergency and Enforcement Response Branch, Response Section I, as its On-Scene Coordinator. The On-Scene Coordinator and the Project Coordinator shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communication between the Respondents and the U.S. EPA, and all documents, reports and approvals, and all other correspondence concerning the activities relevant to this Order, shall be directed through the On-Scene Coordinator and the Project Coordinator. During implementation of the Work Plans, the OSC and the Project Coordinator shall, whenever possible, operate by consensus, and shall attempt in good faith to resolve disputes informally through discussion of the issues.

8. The U.S. EPA and the Respondents shall each have the right to change their respective designated On-Scene Coordinator or Project Coordinator. U.S. EPA shall notify the Respondents, and Respondents shall notify U.S. EPA, as early as possible before such a change is made. Notification may initially be verbal, but shall promptly be reduced to writing.

9. The U.S. EPA On-Scene Coordinator shall have the authority vested in an On-Scene Coordinator by the NCP, 40 CFR Part 300, as amended, including the authority to halt, conduct, or direct any work required by this Order, or to direct any other response action undertaken by U.S. EPA or the Respondents at the facility.

10. No extensions to the time frames shall be granted without sufficient cause. All extensions must be requested, in writing, and shall not be deemed accepted unless approved, in writing, by U.S. EPA.

11. This Order and all instructions by the U.S. EPA On-Scene Coordinator or designated alternate consistent with the National Contingency Plan and this Order shall be binding upon the Respondents, and the employees, agents, contractors, subcontractors, successors, and assigns of the Respondents. For the purpose of this Order, Respondents are jointly and severally responsible for carrying out all actions required by this Consent Order.

12. To the extent that the Facility or other areas where work under this Order is to be performed is owned by, or in possession of, someone other than the Respondents, Respondents shall attempt to obtain all necessary access agreements. In the event that after using their best efforts, Respondents are unable to obtain such agreements, Respondents shall immediately notify U.S. EPA, and U.S. EPA may then assist Respondents in gaining access, to the extent necessary to effectuate the response activities described herein, using such means as it deems appropriate. Respondents shall reimburse U.S. EPA for all attorneys' fees and court costs it incurs in assisting Respondents to obtain access. Nothing in this Order shall be construed as restricting the inspection or access authority of U.S. EPA under any law or regulation.

13. Respondents shall provide access to the Facility to U.S. EPA employees, and U.S. EPA-authorized contractors, agents, and consultants at anytime, and shall permit such persons to be present and move freely in the area in order to conduct inspections, including taking photographs and videotapes of the Facility, to do cleanup/stabilization work, to take samples, to monitor the work under this Order, and to conduct other activities which the U.S. EPA determines to be necessary. If U.S. EPA elects to take its own samples under this Consent Order, it shall provide a reasonable prior notification to the Project Coordinator and provide split or duplicate samples to the Project Coordinator upon request.



14. This Order shall be effective on the date of signature by the U.S. EPA Waste Management Division Director. Respondents shall be notified by U.S. EPA no later than the day following the date of signature by the Director via fax or Federal Express.

15. Respondents shall provide a written monthly progress report to the On-Scene Coordinator regarding the actions and activities undertaken under this Order. At a minimum, these progress reports shall describe the actions that have been taken to comply with this Order, including all results of sampling and tests received or prepared by the Respondents and shall describe all significant work items planned for the next month. Monthly reports shall be submitted to the On-Scene Coordinator on the last business day of each month. A final report shall be due within thirty (30) calendar days of completion of removal activities.

16. Respondents agree to retain for six years following completion of the activities required by this Order copies of all records, files and data relating to hazardous substances found at the site, or related to the activities undertaken pursuant to this Order, whether or not those documents were created pursuant to this Order. Respondents shall acquire and retain copies of all documents relating to the site that are in the possession of their contractors, subcontractors, agents and employees. Respondents shall notify U.S. EPA at least sixty (60) days before any documents retained under this paragraph are to be destroyed. The documents retained under this paragraph shall be made available to the U.S. EPA upon request.

17. Respondents shall pay all past costs and oversight costs of the United States related to the Columbus Scrap site which are not inconsistent with the National Contingency Plan. The United States shall submit an itemized cost statement entitled "Itemized Cost Summary" to Respondents annually or, if sooner, not less than sixty (60) calendar days after submission of the Final Report provided for in Paragraph 25 below of this Order. Payments shall be made within sixty (60) calendar days of Respondents' receipt of the cost statement. Payments shall be made to the EPA Hazardous Substances Superfund delivered to the U.S. EPA, Attn: Superfund Accounting, P.O. Box 70753, Chicago, Illinois 60673, in the form of a certified or cashier's check payable to "EPA Hazardous Substances Superfund". The face of the check should note that the payment is for the Columbus Scrap site, Superfund Site Identification Number JR. Respondents are jointly and severally liable for payment of the full amount due under this Order. A copy of the check(s) submitted must be sent simultaneously to the U.S. EPA representatives indicated in paragraph 18 below.

18. A notice, document, information, report, plan, approval, disapproval or other correspondence required to be submitted from one party to another under the Order shall be deemed submitted either when hand delivered or as of the date of receipt by certified mail, return receipt requested.

Submissions to the Respondents shall be made to the following until designation of a Project Coordinator:

Kirk N. Guy  
Bricker & Eckler  
100 South Third Street  
Columbus, Ohio 43215-4299

Mark Murphy  
CSX Transportation, Inc.  
500 Water Street  
Speed Code: J-275  
Jacksonville, FL 32202

Upon designation of a Project Coordinator, submission to the Respondents shall be made to the Project Coordinator.

Submissions to the U.S. EPA shall be submitted to:

one copy:

Steven Renninger, OSC  
Response Section I  
U.S. EPA, Region V 5-SEDO  
25089 Center Ridge Road  
Westlake, Ohio 44145

one copy:

Alvin Liebling  
Assistant Regional Counsel  
U.S. EPA, Region V 5CS-TUB  
230 South Dearborn Street  
Chicago, Illinois 60604

19. If any provision of this Order is deemed invalid or unenforceable, the balance of this Order shall remain in full force and effect.

#### STIPULATED PENALTIES

20. For each day the Respondents fail to submit reports, or fail to perform actions required and in accordance with a schedule contained in this Consent Order and a Work Plan approved by U.S. EPA, Respondents shall be liable as follows:

- a. For failure to commence and perform work prescribed in this Consent Order and a U.S. EPA approved Work Plan: Five Hundred Dollars (\$500) per day for one (1) to seven (7) business days of delay, and One Thousand Dollars (\$1,000) per day for each day of delay, or part thereof, thereafter;

- b. For failure to submit a Work Plan pursuant to Paragraph 1 and/or Paragraph 2 at the time required under the terms of this Order: Five Hundred Dollars (\$500) per day for the first one (1) to seven (7) business days of delay, and One Thousand Dollars (\$1,000) per day for each day of delay, or part thereof, thereafter;
- c. For failure to submit the monthly written Progress Reports pursuant to Paragraph 15, or the Final Report pursuant to Paragraph 25, at the time required under the terms of this Order: Five Hundred Dollars (\$500) per day for the first one (1) to seven (7) business days of delay, and One Thousand Dollar (\$1,000) per day for each day of delay, or part thereof, thereafter;
- d. For failure to comply with provisions of this Order after notice by U.S. EPA of noncompliance: Two Thousand Dollars (\$2,000) per day for the first one (1) to seven (7) business days of delay, and Four Thousand Dollars (\$4,000) per day for each day of delay, or part thereof, thereafter;

21. All penalties which accrue pursuant to the requirements of this Order shall be paid within ten (10) calendar days of written demand by U.S. EPA. Payment shall be made to the EPA Hazardous Substances Superfund delivered to the U.S. EPA, Attn: Superfund Accounting, P.O. Box 70753, Chicago, Illinois 60673, in the form of a certified or cashier's check payable to "EPA Hazardous Substances Superfund." The face of the check should note that the payment is for the Columbus Scrap site.

22. Pursuant to 31 U.S.C. Section 3717, interest shall accrue on any amount of overdue stipulated penalties at a rate established by the United States Treasury. Stipulated penalties shall accrue, but need not be paid, during any dispute resolution period concerning the particular penalties at issue. If Respondents prevail upon resolution, Respondents shall pay only such penalties as the resolution requires.

23. Payment of Stipulated Penalties will not relieve Respondents from complying with the terms of this Consent Order. U.S. EPA retains the right to seek any remedies or sanctions available to U.S. EPA by reason of Respondent's noncompliance with the provisions of this Consent Order that are not otherwise expressly limited by these Stipulated Penalty provisions.

PENALTIES FOR NONCOMPLIANCE

24. Except as provided under the provisions of paragraph 20 hereof, Respondents are advised pursuant to Section 106(b) of CERCLA, 42 U.S.C. Section 9606(b), that violation or subsequent failure or refusal to comply with this Order and any Work Plan approved under this Order, or any portion thereof, may subject the Respondents to a civil penalty of no more than \$25,000 per day for each day in which such violation occurs, or such failure to comply continues; in addition, failure to properly provide removal action under the terms of this order, or other subsequent orders issued by U.S. EPA, may result in liability for punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C Section 9607(c)(3).

TERMINATION AND SATISFACTION

25. The Respondents shall submit a final report summarizing the actions taken to comply with this Order. The report shall contain, at a minimum: identification of the Facility, a description of the locations and types of hazardous substances encountered at the Facility upon the initiation or performance of work performed under this Order, a chronology and description of the actions performed (including both the organization and implementation of response activities), a listing of the resources committed to perform the work under this Order (including financial, personnel, mechanical and technological resources), identification of all items that affected the actions performed under the Order and discussion of how all problems were resolved, a listing of quantities and types of materials removed, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination of those materials, and a presentation of the analytical results of all sampling and analyses performed and accompanying appendices containing all relevant paperwork accrued during the action (e.g., manifests, invoices, bills, contracts, subcontracts, permits). The final report shall also include an affidavit from the person who supervised or directed the preparation of that report for each Respondent. The affidavit shall certify under penalty of law that based on personal knowledge and appropriate inquiries of all other persons involved in preparation of the report, the information submitted is true, accurate and complete to the best of the affiant's knowledge and belief. The report shall be submitted within thirty (30) days of completion of the work required by the U.S. EPA.

26. The provisions of this Order shall be deemed satisfied upon payment by Respondents of all sums due under the terms of this Order and upon the Respondents' receipt of written notice from U.S. EPA that the Respondents have demonstrated, to the satisfaction of U.S. EPA, that all of the terms of this Order, including any additional tasks consistent with this Consent Order which U.S. EPA has determined to be necessary, have been completed.

#### INDEMNIFICATION

27. The Respondents agree to indemnify and save and hold harmless the United States Government, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from, or on account of, acts or omissions of the Respondents, their officers, employees, receivers, trustees, agents, contractors, subcontractors, successors or assigns, in carrying out the activities pursuant to this Order. The United States Government shall not be held as a party to any contract or subcontract entered into by or for the Respondents in carrying out activities under this Order.

#### RESERVATION OF RIGHTS

28. This Order is not intended for the benefit of any third party and may not be enforced by any third party.

29. The U.S. EPA and the Respondents reserve all rights, claims, demands, and defenses, including defenses and denials of and to all determinations and findings, that they may have as to each other except as otherwise provided in this Order pursuant to any available legal authority. Nothing in this Order shall expand the Respondents' ability to obtain preenforcement review of U.S. EPA actions. Notwithstanding any reservation of rights, Respondents agree to comply with the terms and conditions of this Order and consent to the jurisdiction of the U.S. EPA to enter into and enforce this Order.

30. Nothing herein is intended to release, discharge, limit or in any way affect any claim, causes of action or demands in law or equity which the parties may have against any persons, firm, trust, joint venture, partnership, corporation, or other entity not a party to this Order for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, disposal, release or threat of release of any hazardous substance, hazardous waste, contaminant or pollutant at or from the site. The parties to this Order hereby expressly reserve all rights, claims, demands and causes of action they may have against any and all other persons and entities who are not parties to this Order.

31. Nothing herein shall be construed: 1) to prevent U.S. EPA from exercising its right to disapprove of work performed by the Respondents; 2) to prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this order; 3) to prevent U.S. EPA from taking other legal or equitable action not inconsistent with the Covenant Not To Sue in paragraphs 42 through 44 of this Order; 4) to prevent U.S. EPA from requiring the Respondents in the future to perform additional activities pursuant to CERCLA, 42 U.S.C. Section 9601 et seq., or any other applicable law; or 5) to prevent U.S. EPA from undertaking response actions at the site.

#### FORCE MAJEURE

32. The Respondents shall cause all work to be performed within the time limits set forth herein and in an approved Work Plan, unless performance is delayed by "force majeure". For purposes of this Order, "force majeure" shall mean an event arising from causes entirely beyond the control of the Respondents and their contractors and subcontractors which delays or prevents the performance of any obligation required by this Order. Increases in costs and financial difficulty are examples of events that are not considered to be beyond the control of the Respondents.

33. Respondents shall notify the OSC within 24 hours after Respondents become aware of any event which Respondents contend constitutes a force majeure, with subsequent written notice within seven (7) calendar days of the event. Such written notice shall describe: 1) the nature of the delay, 2) the cause of the delay, 3) the expected duration of the delay, including any demobilization and remobilization resulting from the delay, 4) the actions which will be taken to prevent or mitigate further delay, and 5) the timetable by which the actions to mitigate the delay will be taken. Respondents shall implement all reasonable measures to avoid and/or minimize such delays. Failure to comply with the notice provision of this paragraph shall be grounds for U.S. EPA to deny Respondents an extension of time for performance. The Respondents shall have the burden of demonstrating by a preponderance of the evidence that the event is a force majeure, that the delay is warranted under the circumstances, and that best efforts were exercised to avoid and mitigate the effects of the delay. If U.S. EPA determines a delay is or was attributable to a force majeure, the time period for performance under this Order shall be extended as deemed necessary by the OSC to allow performance.

DISPUTE RESOLUTION

34. The Parties to this Order on Consent shall attempt to resolve expeditiously and informally any disagreements concerning implementation of this Order on Consent or any Work required hereunder.

35. In the event that any dispute arising under this Order on Consent is not resolved expeditiously through informal means, any party desiring dispute resolution under this Section shall give prompt written notice to the other parties to the Order.

36. Within ten (10) calendar days of the service of notice of dispute pursuant to Paragraph 35 above, the party who gave notice shall serve on the other parties to this Order a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis or opinion supporting its position, and all supporting documentation on which such party relies (hereinafter the "Statement of Position"). The opposing parties shall serve their Statement of Position, including supporting documentation, no later than ten (10) calendar days after receipt of the complaining party's statement of Position. In the event that these 10-day time periods for exchange of Statements of Position may cause a delay in the work, they shall be shortened upon and in accordance with notice by U.S. EPA.

37. An administrative record of any dispute under this Section shall be maintained by U.S. EPA. The record shall include the written notification of such dispute, and the Statements of Position served pursuant to the preceding paragraphs.

38. Upon review of the administrative record, the Director of the Waste Management Division, U.S. EPA, Region V, shall issue a final decision and order resolving the dispute consistent with the NCP and the terms of this Order.

NON-ADMISSION

39. The consent of the Respondents to the terms of this Order shall not constitute or be construed as an admission of liability or of U.S. EPA's findings or determinations contained in this Order in any proceeding other than a proceeding to enforce the terms of this Order.

CERCLA FUNDING

40. The Respondents waive any claims or demands for compensation or payment under Sections 106(b), 111 and 112 of CERCLA against the United States or the Hazardous Substance Response Trust Fund established by Section 221 of CERCLA for, or arising out of, any activity performed or expenses incurred pursuant to this Consent Order.

41. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA.

COVENANT NOT TO SUE

42. Upon termination and satisfaction of this Administrative Order pursuant to its terms, for and in consideration of the complete and timely performance by Respondents of the obligations agreed to in this Order, U.S. EPA hereby covenants not to sue Respondents for judicial imposition of damages or civil penalties for any failure to perform obligations agreed to in this Order except as otherwise reserved herein.

43. Performance of the terms of this Order resolves and satisfies the liability of the Respondents to U.S. EPA for work satisfactorily performed under this Order. U.S. EPA recognizes that, pursuant to Section 113 of CERCLA, the Respondents, upon having resolved their liability with the U.S. EPA for the matters expressly covered by this Order, shall not be liable for claims for contribution regarding matters addressed in this Order. Nothing in this Order precludes the Respondents from asserting any claims, causes of action or demands against potentially responsible parties who are not parties to this Order for indemnification, contribution, or cost recovery.

44. In consideration of the actions to be performed by the Respondents under this Order, the U.S. EPA covenants not to sue the Respondents, their successors or assigns for any and all claims which are available to the U.S. as against the Respondents under Sections 106 and 107 of CERCLA concerning all matters satisfactorily performed.

SUBSEQUENT AMENDMENT

45. This Consent Order may be amended by mutual agreement of U.S. EPA and the Respondents. Any amendment of this Consent Order shall be in writing, signed by U.S. EPA and the Respondents and shall have as the effective date, that date on which such amendment is signed by U.S. EPA.



SIGNATORIES

Each undersigned representative of a signatory to this Administrative Order on Consent certifies that he or she is fully authorized to enter into the terms and conditions of this Order and to bind such signatory, its directors, officers, employees, agents, contractors, subcontractors, successors and assigns, to this document.

Agreed this 2nd day of APRIL, 1991.

Columbus Scrap Corporation

By Erny Reynolds, Executive Vice President or CEO / RK part of plans authorized  
(Name) (Title)

CSX Transportation, Inc.

By W. A. Kirk / W. A. Kirk  
(Name) (Title)

The above being agreed and consented to, it is so ORDERED

this 10th day of April, 1991.

By

David A. Ullrich  
David A. Ullrich, Director  
Waste Management Division  
U.S. Environmental Protection Agency  
Region V, Complainant

Potentially Responsible Parties Receiving 106 Orders

Columbus Scrap Corporation  
c/o Kirk N. Guy  
100 South Third Street  
Columbus, Ohio 43215-4299

CSX Transportation Company  
c/o Dennis P. Reis  
Sidley & Austin  
Suite 5400  
One First National Plaza  
Chicago, Illinois 60603

**EXHIBIT B**

# PCB UPDATE

*The Newsletter for PCB Regulators*

*April 1994*

## *In This Issue:*

- ▶ Changes at HQ
- ▶ New Members Join HQ PCB Team
- ▶ PCB National Meetings
- ▶ Disposal Amendments
- ▶ Commercial Storer Criteria Amended
- ▶ Used Oil Provisions Technical Amendment
- ▶ FR Notice Reflects OPPT Reorganization
- ▶ EPA Grants Small Capacitors Petition
- ▶ §21 Petition on Incinerators Denied
- ▶ Exemption Petitions Rule Status
- ▶ Agency Proposes to Simplify Transformer Reclassification
- ▶ Navy and Scrappers are "Co-Generators"
- ▶ Import-for-Disposal
- ▶ Environmental Indicators
- ▶ New Hampshire State Grant Program
- ▶ PADS Enhancements
- ▶ Crown Central Enforcement Case
- ▶ Biotech Update
- ▶ Biotech Guidance
- ▶ Disposal Permits Summary

## HEADQUARTERS PCB STAFF GETS NEW NAME, NEW OFFICE & NEW ADDRESS

As mentioned elsewhere in this newsletter, the Office of Pollution Prevention and Toxics (OPPT) went through a major reorganization in October, 1992. For the PCB branch, this meant a new position and identity in the office. Formerly the Chemical Regulation Branch, it was renamed the Operations Branch. In addition, the Exposure Evaluation Division was eliminated in the reorganization, and the branch was moved to the newly created Chemical Management Division. Within the Operations Branch, the Regulations Section and Disposal Section are now known as Sections I and II, respectively. No staff changes were made within the branch as a result of the reorganization.

Although most people are aware of the Operation Branch's new name, many may not be aware of its new mail code. Effective November, 1993, the EPA Headquarter's mail room has issued new four-digit mail codes for all headquarter's offices. The Chemical Management Division, including the Operations Branch, is no longer TS-798, but now 7404. Other new mail codes that may be needed to conduct your PCB affairs include: OPPTS immediate

office (7101); OPPT immediate office (7401); TSCA Document Processing Center (7407); OCM (7201); OGC Toxics (2333R), and OE Toxics (2245). Mail with the old TS-798 mail code is still being delivered, but as time goes on such mail will undoubtedly be delayed or misrouted, so make a note of the new codes now.

Not only do we have a new name and address, but as of this spring the Operations Branch will have a new office location. The branch will remain at Waterside Mall, but it is moving from the Northeast Mall (NE117 & NE118) to the eighth floor of the East Tower. The move is currently scheduled for early April. Office phone numbers are supposed to remain the same, and mail delivery should not be affected, provided that the proper mail code is used.

The first contingent of EPA staff is also scheduled to move to newly renovated space in the Federal Triangle section of Pennsylvania Avenue. The staff is from the new Office of Enforcement and Compliance Assurance with the remainder of that Office scheduled to move by this Autumn. This move is to the first of three buildings which will ultimately comprise the new consolidated headquarters complex.

## **NEW MEMBERS JOIN HEAD- QUARTERS PCB TEAM**

The Operations Branch received two new staff members in 1993. In April, Peter Gimlin was hired to join the Regulations Section (Section I). Peter had been working for several years with the TSCA Hotline. Also, in October, Bill Wells transferred from the Chemical Management Division immediate office to the Operations Branch immediate office. Bill is assisting the branch in developing communication and information tracking systems.

With Peter's arrival, responsibilities in Section I were redistributed. A chart at the back of this newsletter summarizes current Operations Branch staff responsibilities.

## **1993 AND 1994 PCB NATIONAL MEETINGS**

The 1993 National meeting was held from May 3 through May 6 in Arlington, Virginia at the Hyatt Hotel in Rosslyn, just across the Potomac from Washington, D.C. A total of 60 people attended. Representatives from nine Regions (all except for Region VIII) attended, as well as representatives from Alabama, Illinois, Maine, Oregon, New Hampshire, Connecticut, Missouri, Washington, Puerto Rico, Kentucky, Ohio and Texas.

The seminar began with an overview of activities by the Operations Branch. Much attention was devoted to the PCB disposal amendments currently under

development. Numerous other presentations were also made. Mike Walker discussed the Office of Enforcement's approach to PCBs. Region V conducted a strategic planning meeting among the regions. The Office of Compliance Monitoring made presentations on various programs, such as FOSTTA, Grant Guidance, PCBs in mines, and the PCB Penalty Policy. The meeting ended with a review of Lead regulations (Title X) by Brion Cook of OPPT/CMD.

Plans are currently being finalized for the 1994 PCB National Meeting. Due to budget constraints, the 1994 meeting will be held at the same hotel as last year. It will start Tuesday, May 17, at noon, and will run through Thursday afternoon, May 19. Preliminary information on the 1994 National Meeting has been sent out, and a final agenda is under development.

(For further information, contact Dave Hannemann at 202-260-3961.)

## **UPDATE ON THE PCB DISPOSAL AMENDMENTS**

On June 10, 1991, EPA issued an advanced notice of proposed rulemaking to solicit comments on amending the PCB rules at 40 CFR Part 761 to address several specific issues of concern and to ask for suggestions on changes to other areas of those regulations. We now have a document of over 400 manuscript pages, addressing

approximately seventy issues ranging across the entire spectrum of the PCB rules. The goals of the PCB program over the next five years, as reflected in the Disposal Amendments, are (1) to focus limited resources on the high risk situations, (2) implement the program based on risk, and (3) encourage the retirement of PCBs, especially liquids, from service.

A draft of the proposed rule is currently being prepared for internal Agency "Red Border" review, review by the Office of Management and Budget and publication in the Federal Register by the end of 1994. Possible holdups include the sheer size of the document and the number of issues covered, the fact that the Disposal Amendments will be the first review of the PCB program and related issues by the new administration, and an unknown fate at the Office of Management and Budget.

Out of more than 70 areas addressed in the Disposal Amendments, there are five specific highlights:

### **Large Volume Waste**

Large volume waste has been separated into two categories, "remediation" waste such as contaminated soils from a Superfund cleanup and, for the lack of a better term, "non-remediation" waste, such as shredder fluff. EPA will address PCB-contaminated materials disposed of (including spills) prior to 1978, the effective

date of the PCB disposal rules, and in particular those pre-1978 wastes that currently present a risk of exposure. Remediation wastes present a difficult problem because of the wide variety of wastes, the many options for destruction or containment, and the expense of negotiating a remediation plan acceptable to all parties at each site. The rules will retain the current options of chemical waste landfilling and incineration. EPA wants to propose a "CERCLA-style" risk-based remediation option, which we are concerned will be very time and resource intensive for both the Agency and the regulated community. Therefore, a third option under consideration is a "self-implementing" (i.e., no prior approval) method for the cleaning and remediation of contaminated soils in both high and low exposure areas. While EPA has a low risk technology (i.e., no heat and no chlorinated solvents) it is considering for proposal, we will solicit proposals for other technologies with similar low risk of exposure, supported by field data. EPA is also considering an expansion of the current decontamination rules (§761.79) to establish standards and procedures for decontamination to levels generally safe for reuse for liquids, non-porous surfaces and certain items which cannot easily be sampled after decontamination (e.g., the inside of a pump).

The last issue under large volume waste is the disposal of non-remediation waste such as auto shredder fluff. Since the waste

streams are all different in composition and disposal settings are also variable, EPA sees the site specific or waste specific approval option as the best method for addressing the issue of non-remediation waste. It is also possible to address the issue through a waste characterization method, such as RCRA's Toxicity Characteristic Leaching Procedure (-TCLP). Where PCBs are tightly bound in a material, disposal in a municipal solid waste landfill may not present an unreasonable risk.

#### Unauthorized Uses

It seems that almost every week another non-liquid pre-TSCA use for PCBs is discovered. Examples include gaskets, insulation, plastics, roofing and siding. In the past, EPA addressed these unauthorized uses one at a time as they came to our attention. The intent of the proposed rule will be to authorize a category of PCB containing solids for use, with certain conditions, to ensure no unreasonable risk of exposure. In addition, we are considering options for reuse and disposal of PCB-contaminated natural gas pipeline.

#### Storage

PCB articles are sometimes placed in storage-for-reuse, i.e., as a backup for other articles which are currently in-service. EPA has found, through its compliance monitoring program, that some PCB articles were placed in storage with no plan for reuse, and EPA believes, actually to avoid

the disposal requirements. EPA is considering a proposal for a general time limit on storage for reuse, with exceptions. The focus of concern is on the facility which is not servicing the equipment and which cannot use the equipment itself. The other storage issue is the current 1-year time limit for storage and disposal of PCB wastes. While in general that limit will be retained, several options for extensions will be proposed. The options will include a general extension of the 1-year time-frame (2-years total) for those who can document their continuing attempts to obtain disposal capacity and show EPA that they have been unsuccessful.

#### State Enhancement

The fourth major topic covered under the Disposal Amendments is state enhancement. EPA is aware of many instances where PCB wastes are regulated concurrently under multiple Federal or state statutes, with no apparent reduction of risk to human health or the environment. To minimize regulatory duplication, EPA is considering a rule change which would allow the recognition of other Federal or state issued PCB waste permits, such as a State RCRA base permit or a Federal/State RCRA corrective action permit, as equivalent to a PCB approval under TSCA. This recognition may or may not include additional conditions as each situation warrants, but the goal is to consolidate control of the PCB waste under one document.

### Wet Weight/Dry Weight

The final topic concerns clarification of the measurement of PCB concentrations in the presence of water. The so called "Wet Weight/Dry Weight" rule was proposed on April 4, 1990, but never promulgated, in part because the comments received required a significant rewriting of the proposal. We plan to propose the revised version of the rule as part of the Disposal Amendments.

(For further information, contact Tony Baney at (202) 260-3933.)

### FINAL RULE ISSUED TO CLARIFY COMMERCIAL STORER CRITERIA

On March 5, 1990, the National Solid Wastes Management Association and Chemical Waste Management, Inc. filed a joint petition for review of the PCB Notification and Manifesting Rule (54 FR 52716) in the U.S. Court of Appeals for the District of Columbia Circuit. The petition raised a number of interpretive issues with respect to the rule, in particular the criteria applied to commercial storers of PCB waste. On November 20, 1992, EPA and the petitioners filed a Settlement Agreement with the court whereby the petitioners agreed to dismiss their petition if EPA would amend the regulatory language to address their concerns. A final rule was published in the *Federal Register* on November 9, 1993 (58 FR 59372).

With this rule, EPA is amending

its regulations for PCBs at 40 CFR 761, Subpart D in order to clarify one of the criteria which serves as a basis for EPA granting written, final approval to a person to engage in the commercial storage of PCB waste. Specifically, EPA is amending section 761.65(d)(2)(vii) to clarify that the existence of two or more related civil violations or a single environmental criminal conviction in an applicant's environmental compliance history will not automatically lead to denial of an application for a PCB commercial storage approval. The references to specific numbers of civil violations or criminal convictions have been deleted. The revised language states that if there is a pattern or practice of noncompliance evidenced in the applicant's compliance history then that pattern or practice may be deemed to constitute a sufficient basis for denial of a commercial storage application.

(For further information, contact Tom Simons at (202) 260-3991.)

### USED OIL PROVISIONS REVISED TO CONFORM TO NEW RCRA REGULATIONS

On March 23, 1993, the EPA published a rule in the *Federal Register* (58 FR 15435) amending the regulations at 40 CFR Part 761.20 which allow the burning and marketing of used oil containing less than 50 parts per million (ppm) PCBs for purposes of energy recovery. This technical amendment revises §761.20(e) by replacing, where appropriate, the

previous 40 CFR Part 266 designations with the current 40 CFR Part 279 designations. The rule makes no changes in the substantive requirements of §761.20(e) and became necessary when the Office of Solid Waste (OSW) published a final rule (September 10, 1992, 57 FR 41566) that amended the Part 266 requirements. These requirements were moved from Part 266 and inserted at a newly created Part 279.

The regulations at § 761.20(e) address the burning of waste oil containing 2 ppm or greater PCB for purposes of energy recovery (i.e., as fuel). Basically, such oil may only be sold to qualified burners under RCRA, or to marketers who will in turn sell it to such burners. All marketers who handle such "off spec" oil, including generators who sell directly to a burner, must have an EPA identification number. In addition, the rule requires all used oil being burned to be presumed to contain 2 ppm or greater PCBs, unless it can be documented otherwise.

(For further information, contact Peter Gimlin at (202) 260-3972.)

### TECHNICAL AMENDMENT REFLECTS OPPT REORGANIZATION

On October 4, 1992, the Office of Pollution Prevention and Toxics (OPPT) underwent a reorganization. The objectives of this reorganization included: accommodating new missions, consolidating similar functions and programs, general streamlining, taking

advantage of new technology, and separating risk assessment and risk management functions.

This realignment of OPPT resulted in a reshuffling of staff -- that is, some divisions and staff moved from one box in the organization chart to another, and some divisions were renamed. One division was eliminated and another was created. A copy of the current OPPT organizational chart is included in this newsletter for reference.

In terms of the PCB Program, it moved from the defunct Exposure Evaluation Division to the newly created Chemical Management Division. The PCB staff remains intact and was renamed the Operations Branch (formerly the Chemical Regulation Branch, EED). Regulatory activities are handled by Section I, and disposal activities are handled by Section II.

The OPPT reorganization was the basis for a technical amendment that was published in the *Federal Register* on March 24, 1993 (58 FR 15808). Throughout the PCB regulations reference was made to the Director, Exposure Evaluation Division (Director, EED) as the approval authority for specific activities. These references are found:

- At §761.30; the Director, EED is the approval authority for requests to use alternate methods to simulate in-service use for reclassifying transformers.
- At §761.60; the Director, EED is listed as an approval authority for requests for alternate methods

of disposal.

► At §761.65; the Director, EED is listed as an approval authority for requests for a commercial storage permit.

► At §761.70; the Director, EED is listed as an approval authority for incinerators.

All of these references were updated by the *Federal Register* notice to reflect the changes in the OPPT organization. The approval authority for the above listed activities is now the Director, Chemical Management Division.

Additionally, references were made at 40 CFR 761.205 to the Chemical Regulation Branch for the submission of the Notification of PCB Waste Activity Forms (Form 7710-53). These references were changed to the Operations Branch.

#### **AGENCY GRANTS TSCA §21 PETITION ADDRESSING SMALL CAPACITOR DISPOSAL**

On December 16, 1992, the Agency received a petition under section 21 of TSCA requesting that the regulations at 40 CFR 761.60(b)(2) be revised. These regulations allow PCB small capacitors, defined as containing less than three pounds of dielectric fluid, that are intact and non-leaking to be disposed of as municipal solid waste. The section 21 petition requested all PCB small capacitors and PCB-contaminated materials removed from fluorescent light ballasts be incinerated and the remaining materials be recycled or otherwise

disposed. The Agency granted the petition and will conduct a regulatory investigation to determine whether to amend 40 CFR 761.60(b)(2).

The Agency's further indicated its intent to obtain public comment on various options dealing with PCB small capacitors found in fluorescent light ballasts in the forthcoming proposed PCB Disposal Amendments. Those options include requesting data on: the levels of PCBs found in the potting material of fluorescent light ballasts; the effect of compaction on fluorescent light ballasts in municipal solid waste landfills; the potential of compacted and leaking ballasts contaminating ground water; and the number of fluorescent light ballasts that a single household may dispose of within a one-year time limit.

Recently these petitioners, as well as S.D. Myers of Tallmadge, OH (an approved disposer), submitted analytical data on over 1000 fluorescent light ballasts, generally manufactured prior to the effective date of the 1978 Disposal and Marking Rule (April 18, 1978). The results indicate that approximately 70% of the ballasts contain 50 ppm or greater PCBs in their potting materials.

The Agency is considering proposing disposal requirements for fluorescent light ballasts that contain PCBs at regulated levels in their potting materials. However, the Agency would also authorize their continued use under the pre-TSCA use provisions of the



## Disposal Amendments.

The Disposal Rule Amendments also indicate that other Federal, State or local disposal requirements may apply and disposers should be aware of such requirements. State regulatory and disposal requirements may be more stringent than those promulgated under the Toxic Substances Control Act (TSCA), and PCBs are a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) with a reportable quantity of one pound.

(For further information, contact Dave Hannemann at (202) 260-3961.)

### **TSCA §21 PETITION TO CHANGE INCINERATOR DEFINITION DENIED**

EPA recently denied a citizen's petition filed under Section 21 of the Toxic Substances Control Act (TSCA). The petition was submitted on July 14, 1993 by the Hazardous Waste Treatment Council, along with the Sierra Club and the Izaak Walton League of America. The petitioners sought to have EPA initiate action to amend the definition of incinerator at 40 CFR 761.3 to include any device "that heats waste in an oxidative environment." (This would encompass any exposure to air or flame while heating.) The petitioners maintained that certain technologies are allowed to treat PCB wastes without meeting the same standards required of incinerators, thereby posing a risk to

health and the environment.

Under section 21 of TSCA, the Agency has 90 days to either grant a petition and initiate appropriate action, or to deny the petition and publish a notice in the *Federal Register*, giving the reasons for the denial. EPA denied the petition because the amendment requested by the petitioners is not necessary to protect against unreasonable risk to health or the environment; the current TSCA PCB regulations require all disposal devices to meet equivalent standards, whether they are permitted as incinerators under 40 CFR 761.70, or as alternative methods under §761.60(e). Therefore, amending the definition of incinerator to include the alternative technologies in question would not subject those technologies to more stringent standards than they already are required to meet. In addition, the changes proposed by the petitioners would be difficult to implement, due to the ambiguous nature of the proposed definition.

The petitioners also petitioned the Agency under RCRA section 7004(a) to amend the definition of incinerator found at 40 CFR 260.10. The Office of Solid Waste will address that petition separately. (Unlike TSCA section 21, RCRA section 7004 imposes no deadline for EPA's response.)

The *Federal Register* notice, which was published on October 5, 1993 (58 FR 51816), explains the Agency's reasons for denial. A copy of the petition and related

documents are available for inspection at the TSCA public docket (file no. OPPTS 211034).

(For further information, contact Peter Gimlin at (202) 260-3972.)

### **FINAL RULE ON PCB EXEMPTION PETITIONS DUE OUT SOON**

The Agency is nearing publication of a final rule in the *Federal Register* addressing five exemption petitions submitted under TSCA Section 6(e)(3)(B). These petitions are for exemptions from the ban on the manufacture, processing and distribution-in-commerce of PCBs. The proposed rule was published in the *Federal Register* on March 2, 1992 (57 FR 7349). The final rule is finishing inner-Agency review, and should appear this spring.

Of the five petitions addressed in this rule, EPA is granting three, and denying two. The three petitions being granted all involve research and development analysis. The first is for ManTech Environmental Technology, Inc. to export small quantities of PCBs for research and development. The second is for Restek Corporation to process and distribute in commerce for export, small quantities of PCBs for research and development. The third petition granted is for R.T. Corporation to process and distribute in commerce analytical reference samples derived from actual waste materials. EPA is also issuing a use authorization for users of analytical reference samples

derived from waste materials, where the samples have been processed and distributed in commerce pursuant to the R.T. Corporation's petition.

EPA is denying two exemption petitions. National Chem Lab petitioned to import from Canada PCBs in oil and soil for laboratory analysis. EPA is denying the petition because the petitioner did not demonstrate why there is a necessity for the PCBs to be imported into the United States, solely for the purpose of analysis, since there are analytical laboratories within Canada for conducting PCB analyses. Joseph Simon & Sons request to export PCB-Contaminated Transformers for salvage to the Far East was denied due to the large amounts of PCBs involved and the availability of alternative options.

A sixth petition from General Motors Corporation (GM) was included in the proposed rule, however, GM subsequently withdrew it from consideration. GM wished to import from Canada voltage transformers with PCBs for the purpose of disposal.

(For further information, contact Geraldine Hilton at (202) 260-3992.)

#### **AGENCY PROPOSES TO SIMPLIFY RECLASSIFICATION OF PCB TRANSFORMERS**

Reclassification of PCB Transformers and PCB-Contaminated Transformers is permitted under 40 CFR §761.30(a)(2)(v). The

reclassification process is used to reduce PCB concentrations and to change the regulatory status of a transformer (i.e., from PCB Transformer ( $\geq 500$  ppm) to PCB-Contaminated status (50-499 ppm) or non-PCB status ( $< 50$  ppm)), thereby reducing the potential risks to human health and the environment as well as the economic and regulatory burdens on PCB equipment owners.

For a transformer to be reclassified, the regulations require that it be drained of PCB oil, refilled with non-PCB dielectric fluid, operated under loaded electrical conditions to reach a 50° Centigrade (C) temperature, and then tested after 90-days (to verify successful reclassification). EPA may also approve alternate methods of reclassification that simulate the in-service loading of PCB Transformers.

This proposed rule would amend the procedure for reclassification of transformers. There are several reasons for modifying these requirements. First, it is not technically possible for some transformers to attain the 50° C temperature required. Statistical analyses indicate that many transformers which never reach the 50° C still reduce the PCB concentrations through properly conducted retrofitting procedures. Additionally, safety risks to employees and to the general public may occur in mandating strict adherence to the current regulations. Finally, EPA has received statistical data that leachback of PCBs from the internal compo-

nents of transformers is not accelerated by elevating temperatures to 50° C.

This rule proposes to change the reclassification process by: (1) removing the 50° Centigrade (C) requirement for all PCB and PCB-Contaminated Transformers; (2) modifying the 90-day requirement to allow PCB Transformers  $< 1,000$  ppm PCB to be tested after a three-week time period and, then, if the PCB concentration is  $< 25$  ppm, the Transformer may be immediately reclassified to non-PCB status (if the PCB concentration is  $\geq 25$  ppm but  $< 500$  ppm, the transformer may be reclassified to PCB-Contaminated status) and; (3) eliminating a post-retrofill testing requirement of PCB-Contaminated Transformers ( $< 500$  ppm PCB) after a properly conducted retrofit procedure.

The reclassification procedures for transformers  $\geq 1,000$  remain unchanged except for the dropping of the 50° C requirement. The Agency is soliciting comments and/or data on whether the procedures proposed for transformers  $< 1,000$  ppm PCB would also be viable for transformers  $\geq 1,000$  ppm PCBs. In addition, EPA is proposing to change the approval authority for granting the use of alternate methods to simulate loaded conditions of in-service use when reclassifying electromagnets, switches and voltage regulators from the Assistant Administrator to the Director of the Chemical Management Division (CMD). The Director of CMD

currently has this approval authority for transformers being reclassified and this proposed change is for the sake of consistency.

The proposed rule was published in the *Federal Register* on November 18, 1993 (58 FR 60970).

The comment period for the proposed rule closed on January 3, 1994; a total of 54 comments have been submitted on the rule. In addition, a public hearing was held on March 9, 1994. Publication of the final rule is expected later this year.

(For further information, contact Tom Simons at (202) 260-3991.)

#### **U.S. NAVY AND SCRAPPERS DEEMED "CO-GENERATORS" OF PCB WASTE**

The U.S. Navy is currently in the process of selling off surplus vessels for scrap, many of which contain PCB components, such as cable insulation. When it sells these vessels to scrappers, the DRMS (Defense Reutilization Marketing Service) retains ownership of the vessels until they are actually cut up for scrap (to prevent the resale of functional warships). DRMS' action gave rise to the issue of who is the generator of the PCB wastes resulting from these scrapping operations, the scrapping company or the Navy?

EPA has decided to treat the Navy and its contractor (i.e., a scrapping company) as co-generators of PCB waste for purposes of the PCB regulations. Issues

such as who must manifest the waste, keep records, etc. is to be addressed in the contract between the Navy and the scrapper. This policy was laid out in an October 28, 1993 letter from Tony Baney, Chief of the Operations Branch to Iona E. Evans of the Navy. Language to this effect will be incorporated into the Compliance Agreement between the Navy and the EPA that covers the sale of these surplus vessels.

(For further information, contact Diane Lynne of the Office of Federal Facilities Enforcement at (202) 260-9755.)

#### **UPDATE ON PCB WASTE IMPORTS**

The Agency has recently received numerous requests to import PCBs for disposal. These requests have been denied based on the Closed Border Policy published in the *Federal Register* on May 1, 1980 (45 FR 29115). The Closed Border Policy was implemented to encourage other countries to develop their own disposal technology rather than depend on the US. Also, the existing disposal capacity at the time the Closed Border Policy was issued was very limited. While the PCB disposal capacity has increased, problems with one or two of the disposal facilities can cause PCBs destined for disposal to back up in the system and cause violations of the one year time limit for storage and disposal.

TSCA Section 6(e)(2)(A) bans the

manufacture of PCBs. TSCA defines manufacture to include importation into the Customs Territory of the United States. Many companies believe that with the passage of NAFTA, PCBs will be allowed entry into the US for disposal. This is not the case because NAFTA basically deals with goods, and control of wastes has been deferred to Basel. However, negotiated side agreements could affect waste generated from cleanup of facilities located along the border.

Transboundary shipments of waste are covered by the Basel Convention which was signed by the US. However, legislation to ratify and implement Basel has not occurred and no regulations are under development. Modifications to the existing ban on imports are being considered for inclusion in the PCB Disposal Amendments to provide flexibility to implement U.S. treaty or other legislative obligations.

(For further information, contact Peter Gimlin at (202) 260-3972.)

#### **ENVIRONMENTAL INDICATORS**

Under the former Administration, a 4-year strategy was implemented which focussed on the development of an Environmental Indicators Tracking System. The PCB program was asked to develop a PCB Environmental Indicator report that would demonstrate its success in decreasing the amount of PCBs in the environment. Unlike the TRI program, there are date-specific require-

ments for PCBs in use to be phased out of service (i.e., transformers in commercial buildings), so the exercise was not a true indicator of the program's activities. Nonetheless, a report was prepared for the Administrator in the Spring of 1992 reflecting the data received from the 1990 PCB Annual Reports which were sent to the Regions by commercial storers and disposers of PCB waste. Section 761.180(b)(3) requires these individuals to report their PCB activities to the Regions by July 15th for the previous calendar year. The data were first collected in 1991 and include (in both numbers of units and kilograms) transformers, capacitors, containers, article containers, and bulk waste that were in storage, disposed of, transferred to another facility, and remaining in storage at the end of the year.

To date, follow-up reports have not been requested. Nonetheless, we have culled the data received for 1991 and have made comparisons to the data received in 1990. Given the possible impacts of the Agency's Combustion Strategy, we believe that tracking the amount of PCBs being disposed of in any given year will be critical to assuring adequate capacity for wastes generated in the United States.

#### **National Highlights**

Nationwide, a total of 451 million kilograms (kg) of PCB waste was disposed of in TSCA disposal facilities in 1991. This is a

decrease of 26% from the amount of waste disposed of in 1990 (609 million kg). There was a general across-the-board decrease in the volume of waste disposed of in 1991 as compared to 1990. The most marked decrease was in the amount of bulk material disposed of -- from 535 million kg in 1990 to 389 million kg in 1991 -- a 27% decrease. The decrease in bulk waste disposed could be attributed to an increased use of standard 55-gallon containers. In fact the data bears this out; there was a thirty fold increase in the number of containers disposed of in 1991 from 161,000 in 1990 to 4.8 million in 1991.

Looking at articles, there was a five fold increase in the number of capacitors disposed of in 1991 from 14,000 in 1990 to 69,000 in 1991; the number of transformers disposed of decreased from 40,000 units in 1990 to 30,000 units in 1991. The volume of PCB waste remaining in storage for disposal at the end of 1991 was relatively unchanged from 1990 (40 million kg and 38 million kg, respectively).

#### **Regional Highlights**

The greatest volume of PCB waste, 153 million kg, was disposed of in Region VII (the Aptus incinerator in Coffeyville, KS accounted for 17 million kg.). The second greatest volume, 110 million kg, was disposed of in Region IV, of which 96.4 million went to the chemical waste landfill in Emelle, AL. The two

regions combined accounted for more than half of all the PCB waste that was disposed of nationally. The greatest number of capacitors, 58,000, was disposed of in Region IV. The greatest number of transformers, 6,800, was disposed of in Region VIII (just under 6,000 were disposed of in Region IV). Finally, the greatest number of PCB Containers was disposed of -- once again -- in Regions IV and VII (1.6 million and 1.2 million, respectively).

(For further information, contact Tom Simons at 202-260-3991.)

#### **NEW HAMPSHIRE PCB STATE ENHANCEMENT GRANT**

In the March 4, 1991 *Federal Register*, the Office of Toxic Substances (now the Office of Pollution Prevention and Toxics) announced a financial assistance program for states entitled "PCB State Enhancement Grant Program." This program was intended for states that had begun to identify PCB waste as a hazardous waste. It was anticipated that each recipient would receive up to \$50,000 seed money. This seed money was to be used to develop state PCB disposal programs under expanded State hazardous waste programs or State TSCA look-alike programs. The Agency's rationale for the program was that a state presence in PCB disposal would expedite the identification and remediation of potential PCB risks.

The State of New Hampshire,

Department of Environmental Services. Air Resources Division was the only applicant and recipient of a PCB State Enhancement Grant. Consequently, EPA was able to accept New Hampshire's alternative proposal and increase the anticipated amount of seed money to \$100,000. By funding New Hampshire's alternative proposal, their program was to be implemented over a 2-year project period for a total budget of \$133,334. Of this amount, \$99,999 is provided by the Federal grant, while \$33,335 is the state cost sharing amount. New Hampshire has requested and received an extension of the project period to September 30, 1994.

New Hampshire anticipated that four major tasks would be accomplished with this grant: (1) finalization of a PCB disposal approach, (2) modification of existing legislation, (3) rulemaking, and (4) development of an implementation plan and schedule.

On July 16, 1993, staff from the Operations Branch conducted an audit of New Hampshire's grant activities. One of the issues discussed during this audit was how PCBs would be regulated. New Hampshire plans to regulate PCBs as a "special waste" under an expanded State hazardous waste program. However, New Hampshire is looking further into this definition of PCBs as a "special waste," because it feels that if the hazardous waste program is followed too closely, there could be a problem with managing

PCBs. In developing regulations New Hampshire plans to reference TSCA regulations and draft additional regulations for areas not covered by TSCA. New Hampshire anticipates that the legislative impact will be minimal. Once the State Legislature meets in January 1994, New Hampshire will prepare a report outlining these changes. New Hampshire projects adoption and implementation of new rules by September 30, 1994 and November 30, 1994, respectively.

(For further information, contact Geraldine Hilton at (202) 260-3972.)

#### **PCB ACTIVITY DATABASE SYSTEM BEING ENHANCED**

The PCB Activity Database System has been operating for 4 years. When PADS was created it was anticipated that we would receive 10,000 notifications. We have presently processed more than 5000 notifications.

Experience gained in using PADS has resulted in several enhancements to the system. Specifically, the PADS Commercial Storers Database has been expanded to include information on permitted disposers. This enhancement will allow easy access to information on commercial storage and permitted disposal facilities by Regional and Headquarters staff.

The features of this enhancement include an expanded screen for entering notes, the capability to search, enter/edit data, print

reports specific to commercial storage and disposal facilities, and more. These changes will be made available in early April when the next PADS update is scheduled to occur. A demonstration of PADS and its enhancements is scheduled for the May PCB National Meeting.

(For further information, contact Geraldine Hilton at (202) 260-3992.)

#### **CROWN CENTRAL ENFORCEMENT CASE HIGHLIGHTS PCB TRANSFORMER ASSUMPTION RULE**

The Office of Enforcement was unable to provide a comprehensive listing of enforcement cases as in the past. However, Mike Walker thought the following specific case would be of interest to regional and state officials.

Crown Central Petroleum Corporation was charged by EPA Region VI with four counts of violating the PCB regulations (TSCA-VI-551C). Crown Central denied the charges, and filed a Motion for Accelerated Decision to dismiss the charges. Barbara Luke, Office of Regional Counsel, Region 6, filed a Motion for Accelerated Decision to determine Crown Central's liability. The principal question raised by the motions is whether Crown Central's transformers are PCB Transformers.

Crown Central is alleged to have failed or refused to maintain records of annual inspections and maintenance and to have failed to

mark PCB transformers. In its motion to dismiss the charges, Crown Central produced nameplate information for some transformers and produced test results dated after the inspection showing the PCB content of all of the transformers as less than 500 ppm. There was no nameplate information for the remaining transformers. Crown Central claims that the transformers are PCB-Contaminated Electrical Equipment as defined in 40 CFR 761.3, containing between 50 and 499 ppm PCB's, for which maintenance and inspection records do not have to be kept and which do not have to be marked.

EPA claims that the transformers fall in the category of PCB Transformers, containing 500 ppm PCBs or more, because at the time of the inspection no information was made available as to the type of dielectric fluid they contained and the fluid had not been tested to determine its PCB concentration. To support its position, the EPA relied not on language in the regulation itself but on a statement in the preamble to the regulation that if a transformer does not have a nameplate or if there is no information available to indicate the type of dielectric fluid in it, the owner or operator must assume the transformer to be a PCB Transformer.

In an Order by Judge Harwood, EPA Administrative Law Judge, dated September 16, 1993, both Crown Central's and EPA Region 6's motions for an accelerated

decision were denied. Judge Harwood indicated that Crown Central's liability would depend upon it producing evidence that it had information about the transformers prior to EPA's inspection; otherwise the presumption that the transformers were PCB transformers would hold. Crown Central settled the case with EPA on November 24, 1993 for \$86,400.

(For further information, contact Mike Walker, OE at (202) 260-8690, or Barbara Luke, ORC Region 6, (214) 655-8073.)

#### **UPDATE ON R&D BIOTECH PERMITS ISSUED BY EPA HEADQUARTERS**

As of December 1993, 12 R&D approvals for the study of the biological degradation of PCBs in soils and sediments have been issued since 1988 under TSCA by EPA Headquarters. Five have expired and seven are currently in force. Most of these approvals are for large scale, *in situ* processes and last one year. No company has yet demonstrated to EPA a process suitable for a commercial permit.

The first Headquarters R&D permit for a biodegradation process was issued to Safetec in August of 1988 for the study of White Rot Fungi to clean soil contaminated with PCBs at a former transformer servicing site in Richfield, Utah. Utah Power and Light, owner of the site, hired Safetec, who claimed to be able

to degrade PCBs with White Rot Fungi, but who did not succeed when studies were carried out under rigorous scientific conditions. Other contractors who tried to destroy PCBs at the site with the fungus were Bioremediation, Inc. and Mycotech. Eventually, in the summer of 1992 the studies were ended by mutual consent, and the PCB-contaminated soil was dug up and landfilled.

In the spring of 1991, General Electric (GE) was issued an R&D permit to study bioremediation in Hudson River sediments. The study lasted only 10 1/2 weeks, but it demonstrated that bioremediation of PCB sediment was possible. An extensive report was published by the company along with numerous scientific and technical articles, including one in Science Magazine.

Also in the spring of 1991, a permit was issued to Texas Eastern to try a biodegradation process for cleanup of PCB-contaminated soils at a compressor station site in St Francisville, LA. The process, developed by Environmental Remediation, Inc. and Louisiana State University's Dr. Ralph Portier, worked slowly if at all, and the site was decommissioned in the spring of 1993.

In the spring of 1991, International Technologies also received approval to try its process that combined the use of UV and biodegradation to clean up soils contaminated with PCBs. The company had massive materials handling problems and ended their

Envirogen, a small New Jersey biotech firm, received a permit in the spring of 1993 to try its bioremediation process on PCB contaminated lagoons owned by Alcoa in Massena, New York. Ultimately, Alcoa decided not to attempt any bioremediation studies at the Massena lagoons, and the Envirogen permit was allowed to expire. Alcoa is now interested in developing its own staff of experts on PCB bioremediation, and to this end the company was issued a permit in August of 1993 to study bioremediation of PCBs at the Alcoa Technical Center in Pennsylvania. At the Technical Center, Alcoa is also evaluating the biodegradation processes of others, such as Envirogen.

In addition to Alcoa, GE and Texas Eastern are evaluating processes belonging to entrepreneurs from all over the world who claim to be able to remove PCBs from soils and sediments. None have succeeded, and many are actually quite outlandish. For example, one European company claimed to be able to destroy PCBs in a bioreactor in only a few weeks. Not surprisingly, the European bioreactor process did not work at all.

In July, 1990, GE was issued a permit to study bioremediation of PCB-contaminated sediments in Woods Pond, MA over several years. Six caissons, almost identical to the caissons used in GE's Hudson River bioremediation

study, were used. The study began in May, 1991. In the summer of 1992, GE tried to stimulate the anaerobic degradation of PCBs in the caissons by adding 2,6 dibromobiphenyl, a chemical with a structure similar to that of the target PCBs. In both laboratory studies and in the Woods Pond caissons, the bromobiphenyl successfully stimulated incremental PCB degradation.

Since the environment in the treated Woods Pond caisson was anaerobic and has remained so, the PCB biodegradation reaction eventually stopped. GE has not yet decided how they want to study further degradation, and for the summer of 1993, GE just monitored the fate of the microbial populations that had been allowed to overwinter in the frozen pond. Interestingly, for the most part they survived.

Texas Eastern as well as Alcoa was impressed by the expertise of Envirogen. As a result, one of their PCB-contaminated compressor stations in Armagh, PA has been set aside by agreement with the State of Pennsylvania and the EPA for research on bioremediation of contaminated soil. The permit for this work by Envirogen was issued to Texas Eastern in June, 1994.

Finally, Coastal Oil and Gas Company was persuaded by BioTek/Alpha Environmental Services to test a combination of quicklime and bioremediation to clean PCB-contaminated soils at a site near Rock Springs, Wyoming. This

permit was issued in December, 1993, after Agency concerns about previous problems with the quicklime process, analytical methods to be used, and proper experimental design were addressed.

Bioremediation may indeed turn out to be a cheap and environmentally sound method for disposal of soils and sediments contaminated with PCBs. However, as these examples indicate, the technology is still in its infancy and is not yet ready for use in actual site cleanups.

Interestingly, of the new technologies for cleaning PCB-contaminated soils and sediments now being studied by both GE and Texas Eastern, the most promising is a simple flotation separation technique that uses surfactants similar to common household dishwashing detergents. It is not a destruction but a physical separation technology that reduces the PCB contaminated media requiring disposal by orders of magnitude. This simple mining technology may turn out to be a successful alternative to incineration and landfilling for use while biodegradation and other PCB destruction processes are being developed.

(For further information, contact Joan Blake at (202) 260-6236.)

## **GUIDELINES FOR BIOTECH PCB DISPOSAL PERMITS**

In the PCB disposal regulations, incineration is considered as the standard for PCB destruction, but

provision is made at Section 761.60(e) for approval by EPA of alternative destruction technologies if "equivalency to incineration" under Section 761.70 can be demonstrated. This includes biological destruction methods.

EPA has developed guidance documents for approval of alternative methods of PCB destruction because Section 761.60(e) does not provide specific instructions. The primary document is entitled "Draft Guidelines for Permit Applications and Demonstration Test Plans for PCB Disposal by Non-Thermal Alternative Methods" (August 21, 1986). Other guidance documents are available for help in formulating Quality Assurance plans and analytical methods associated with permit applications and demonstration test plans. In addition, for biotech permits, a supplemental guide "Guidelines for Applications for PCB Disposal Approvals for Biological Degradation Processes" (January 21, 1993), is also available. All documents may be obtained from EPA Headquarters.

Under TSCA, EPA issues two types of PCB disposal approvals, the commercial operating permit and the Research and Development (R&D) permit. Any research on the performance of a biological process for PCB destruction must be carried out under the terms and conditions of an R&D approval. EPA considers the R&D bioremediation approval to be a well-designed scientific experiment which can produce much needed data on the biodegradation of

PCBs, prior to consideration of bioremediation for universal application under a commercial approval.

Many biodegradation processes that are successful in the laboratory either do not work well or do not work at all in the field for a variety of reasons. Furthermore, even if a bioremediation process appears to destroy PCBs in the field, data must show microbial involvement in the degradation process. EPA requires that a company devise a strategy that will demonstrate as unequivocally as possible that biodegradation has taken place and that the PCB molecule has not simply volatilized, sorbed, transported, or attenuated by some other nonbiological or "abiotic" reaction.

Once several years of rigorous R&D have shown that a company's process effectively biodegrades PCBs in soils and sediments in spatially separated, heterogeneous field sites, the company can apply for an EPA Headquarters' approval to operate its process commercially anywhere in the United States. However, no company has yet demonstrated a biological process to EPA that can accelerate PCB biodegradation to rates necessary to make such a process commercially viable.

(For further information, contact Joan Blake at (202) 260-6236.)

#### **SUMMARY OF HEADQUARTERS PCB DISPOSAL PERMIT ACTIVITY FROM JULY, 1991**

#### **THROUGH DECEMBER, 1993**

##### **Commercial Permits Issued (Denied)**

Burlington Environmental, Inc.  
Seattle, Washington  
Process: pipeline and compressor  
decontamination  
Approved 12/19/91; Amended  
6/8/92

Columbia Gas Transmission Corporation  
Charleston, West Virginia  
Process: pipe and appurtenance  
removal and decontamination  
Approved 4/27/92; Amended  
3/1/93; Amended 5/21/93

Columbia Gas Transmission Corporation  
Charleston, West Virginia  
Process: pipe and appurtenance  
removal and decontamination  
Approved 4/27/92; Amended  
3/1/93; Amended 5/21/93

CNG Transmission Corporation  
Clarksburg, West Virginia  
Process: pipe and appurtenance  
removal  
Approved 7/9/93

ENSR Operations  
Canton, Ohio  
Process: chemical dechlorination  
Renewed 6/06/91 (expires  
6/10/96); Amended 8/29/91

General Electric Company  
Schenectady, New York  
Process: distillation  
Extended 11/19/92; Extended  
2/10/93; Renewed 4/02/93 (ex-  
pires 11/13/97)

General Electric Company



Process: chemical dechlorination  
Extended 10/21/92 (expires  
5/14/93)

Hevi-Duty Electric  
Goldsboro, North Carolina  
Process: reuse of PCB-contaminat-  
ed water  
Approved 7/15/93

Natural Gas Pipeline of America  
Lombard, Illinois  
Process: pipe and appurtenance  
removal  
Approved 7/9/93

Northern Natural Gas Company  
Omaha, Nebraska  
Process: pipe and appurtenance  
removal  
Approved 7/9/93

OHM Remedial Services, Corp.  
Findlay, Ohio  
Process: infrared incineration  
Extended 2/3/92; Renewal Denied  
3/8/93

Quadrex Environmental Company  
Gainesville, Florida  
Process: pipeline and compressor  
decontamination  
Extended 7/1/91; Extended 7/1/92  
(expired 1/5/94)

Tennessee Gas Pipeline Company  
Houston, Texas  
Process: pipeline and compressor  
decontamination  
Amended 9/18/92; Extended  
5/24/93 (expires 5/24/94)

Texas Eastern Transmission Cor-  
poration  
Houston, Texas  
Process: pipe and appurtenance

Renewed 9/30/91

Texas Gas Transmission Corpora-  
tion  
Owensboro, Kentucky  
Process: pipe and appurtenance  
removal  
Approved 11/16/93

Transwestern Pipeline Company  
Houston, Texas  
Process: pipe and appurtenance  
removal  
Approved 7/9/93

Vector Group, Inc.  
Cincinnati, Ohio  
Process: pipeline and compressor  
decontamination  
Approved 2/2/93

Roy F. Weston, Inc.  
West Chester, Pennsylvania  
Process: rotary kiln incinerator  
Extended 10/21/92; Renewed  
2/11/93 (expires 2/11/98)

#### Commercial Permits Pending

Burlington Environmental, Inc.  
Seattle, Washington  
Process: pipeline and compressor  
decontamination

Clean Berkshire, Inc.  
Lanesboro, Massachusetts  
Process: rotary kiln incinerator

Quadrex Environmental Company  
Gainesville, Florida  
Process: pipeline and compressor  
decontamination

S.D. Myers, Inc.  
Talmadge, Ohio  
Process: chemical dechlorination  
(Renewal)

Houston, Texas  
Process: pipeline and compressor  
decontamination

Terra-Kleen Response Group, Inc.  
Oklahoma City, Oklahoma  
Process: soil washing

U.S. Army, Program Manager for  
Chemical Demilitarization  
Aberdeen Proving Ground, Mary-  
land  
Process: rotary kiln incinerator  
for use at Johnston Atoll

Vector Group, Inc.  
Cincinnati, Ohio  
Process: pipeline and compressor  
decontamination

#### R&D Permits Issued

ELI Ecologic International  
Ann Arbor, Michigan  
Process: chemical dechlorination  
Approved 10/8/92 (now expired)

GRC Environmental Inc.  
Syracuse, New York  
Process: chemical dechlorination  
Approved 10/24/91; Renewed  
4/21/92(now expired)

Hazen Research, Inc.  
Golden, Colorado  
Process: chemical dechlorination,  
thermal desorption, combustion  
Approved 9/30/91; Amended  
2/3/92; Amended & Extended  
6/15/92; Extended 6/4/93 (expires  
6/4/94)

Penn State University  
State College, Pennsylvania  
Process: laser cutting of PCB-  
contaminated submarine hulls  
Approved 7/9/92

Quadrex Environmental Company  
Gainesville, Florida  
Process: pipeline and compressor  
decontamination  
Approved 4/20/92; Extended  
10/16/92 (now expired)

Resources Conservation Company  
Bellevue, Washington  
Process: soil washing  
Amended 8/19/93; Renewed  
5/26/92 (expired 5/26/93)

U.S. EPA, RREL  
Cincinnati, Ohio  
Process: rotary kiln incinerator in  
Jefferson, Arkansas  
Renewed 3/22/93

U.S. Naval Civil Engineering Labo-  
ratory  
Port Huemene, California  
Process: chemical dechlorination  
Approved 9/24/91(now expired)

Westinghouse Science and Tech-  
nology Center  
Pittsburgh, Pennsylvania  
Process: treatability studies  
Renewed 3/10/93

**Demonstration Permits Issued**

Burlington Environmental, Inc.  
Seattle, Washington  
Process: pipeline and compressor  
decontamination (2 permits)  
Approved 10/15/93 & 10/22/93

Columbia Gas Transmission Corpo-  
ration  
Charleston, West Virginia  
Process: Pipe and appurtenance  
removal and decontamination (2  
permits)  
Approved 4/14/92 & 4/23/92

Columbia Gulf Transmission Corpo-

ration  
Charleston, West Virginia  
Process: Pipe and appurtenance  
removal and decontamination (2  
permits)  
Approved 4/14/92 & 4/23/92

General Electric Company  
Schenectady, New York  
Process: Distillation  
Renewed 10/1/92

Hevi-Duty Electric  
Goldsboro, North Carolina  
Process: reuse of PCB contami-  
nated water  
Approved 5/4/93

Natural Gas Pipeline of America  
Lombard, Illinois  
Process: Pipe and appurtenance  
removal  
Approved 11/5/92

Northern Natural Gas Company  
Omaha, Nebraska  
Process: Pipe and appurtenance  
removal  
Approved 7/23/92

Quadrex Environmental Company  
Gainesville, Florida  
Process: Pipeline and compressor  
decontamination  
Amended 5/24/93

Tennessee Gas Pipeline Company  
Houston, Texas  
Process: Pipeline and compressor  
decontamination  
Approved 3/1/93

Texas Gas Transmission Corpora-  
tion  
Owensboro, Kentucky  
Process: Pipe and appurtenance  
removal

Approved 6/12/92

Transcontinental Gas Pipeline  
Company  
Houston, Texas  
Process: Pipe and appurtenance  
removal  
Approved 6/4/93

Transwestern Pipeline Company  
Houston, Texas  
Process: Pipe and appurtenance  
removal  
Approved 7/23/92

Vector Group, Inc.  
Cincinnati, Ohio  
Process: Pipeline and compressor  
decontamination  
Approved 2/2/93

**Proposed Demonstration Tests**

Geosafe Corp.  
Kirkland, Washington  
Process: In-situ Vitrification

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**This newsletter is  
published by:**

**Operations Branch,  
Chemical Management  
Division (7404),  
Office of Pollution  
Prevention and Toxics,  
U.S. Environmental  
Protection Agency,  
401 M Street S.W.,  
Washington, DC 20460**

**Tel. (202) 260-3933**

**Editor: Peter Gimlin**

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 Fires Rule -- EEP  
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 Labelling Issues  
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 Excluded Manufacturing Process  
 Transformer Reclassification Rule  
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 Fluff  
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 Reclassification Letters  
 Decontamination Issues  
 Import/Export Issues  
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 Incineration Issues  
 Pipeline Policy

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 Decontamination of Transformers

Winston Lue (260-3962)  
 Pipeline Disposal Issues  
 Decontamination (General)

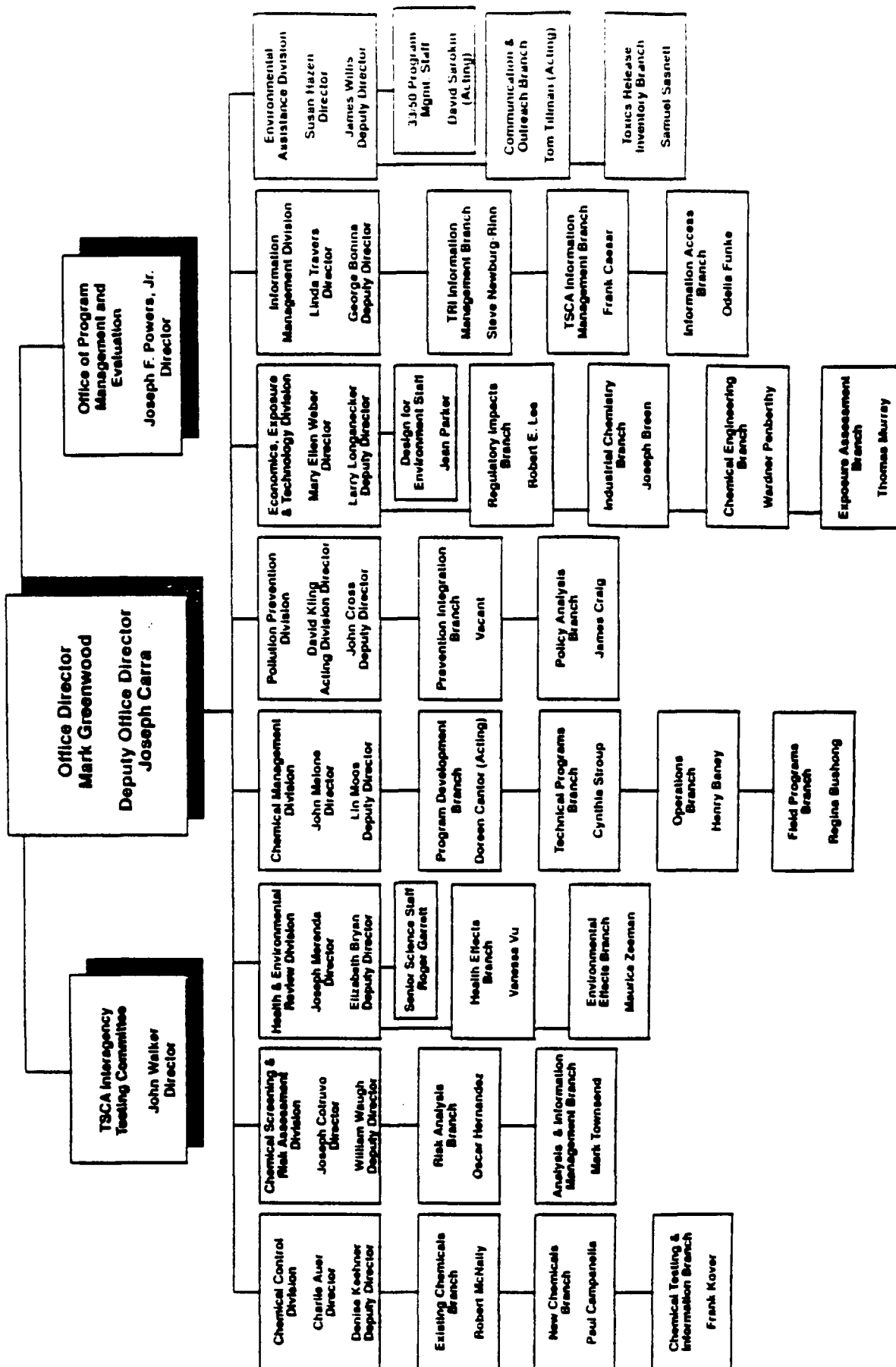
Joan Blake (260-6236)  
 Bioremediation Issues  
 Analytical Procedures

Dave Hannemann (260-3961)  
Immediate Office, OPB

PCB Regulations (General)  
 Enforcement Integration  
 Disposal of Light Ballasts  
 Wet Weight/Dry Weight Rule  
 Hydraulic Industrial Equipment  
 Electrical Equipment/Railroads  
 Commercial Storage of PCBs  
 Preemption

\* All Sec II staff handle PCB Disposal  
 and Disposal Permitting issues.

# OFFICE OF POLLUTION PREVENTION AND TOXICS



**EXHIBIT C**

4-D Locust Lane  
Watertown, MA 02172

May 9, 1994

Mr. Stephen L. Renninger  
U.S. Environmental Protection Agency  
Region V - Emergency Response Branch  
25089 Center Ridge Road  
West Lake, OH 44145

Dear Steve:

It was very nice to hear from you again, although it is unfortunate that it was regarding the CSX-Columbus Scrap Site since that means the project is not yet concluded. As you know, I am no longer officially connected with the U.S. EPA, so my official involvement in this project has ended. You should contact Ms. Joan Colson at the Risk Reduction Engineering Laboratory in Cincinnati, Ohio for continuing Office of Research and Development support. Nevertheless, I am happy to give you what support I can offer as a private citizen with some expertise in this area.

I have reviewed the package of material you faxed me last Friday, including the letter from C. Keith Meiser, senior counsel to CSX Transportation. While I do not have any of the earlier files containing data from the site, I feel the copies of my communications to you and my memory can be relied upon here. In summary, Mr. Meiser relies upon the letter of October 22, 1993 from Dr. James Novitsky of Kemron to support the claim that bioremediation did occur at the site during the treatability study performed there. As Mr. Meiser does not claim to offer any additional technical insight into the interpretation of the results, I must conclude that he does not fully understand them. His comments, therefore, are irrelevant to the technical issue at hand.

Mr. Meiser quotes the Kemron statement that "The site microbial community has been exposed to PCBs for many years, perhaps for several decades, and has developed the ability to degrade PCBs." To my knowledge, no microbes nor microbial consortia have been collected from the Columbus Scrap site, identified, and have demonstrated the ability to biodegrade PCBs under controlled, laboratory conditions. The quoted statement, therefore, is an assumption, not a conclusion based upon sound, unequivocal data. Mr. Meiser also states that the letter from Dr. Novitsky "also noted other points conclusively proving that bioremediation had occurred." (pg. 3). Since Mr. Meiser is not a bioremediation expert, he cannot know whether or not Dr. Novitsky "conclusively proved" anything regarding bioremediation.

Regarding the apparent debate about the relative levels of contaminants in week 10 versus week 20 samples, the underlying point is that all the data which was collected should be considered in making any interpretation. If week 10 is selected by Kemron as the time when bioremediation ceased to occur, they should explain why week 10 was different in some way. My point in mentioning the week 20 data in the first place was that, since it showed higher values than the week 10 data, perhaps the week 10 data was on the low end of the statistical range and week 20 was closer to the "true" value of the contamination present in the soil. Stating conclusively that week 20 represents the high end of statistical variation and week 10 is closer to the "true" value is not valid without a thorough explanation of what occurred at week 10 to effectively end the claimed bioremediation effect.

Mr. Stephen L. Renninger

May 9, 1994

Page 2

The discussion regarding scatter and variability in the data is correct in that heterogeneity in the medium sampled (here, soil) will be represented in the results obtained. What was neglected, however, was discussion of the field sampling methods. For much of the data, as I recall and as I stated in my earlier memos to you, replicate and/or split sampling were performed infrequently by Kemron, if at all, and quality of the data is difficult to estimate without such procedures. It is true that some scatter and variability, in general, occurred in the data generated by EPA's contractor (E&E). Stating that it is "the same scatter and variability" is inaccurate. As my earlier communications with you have stated, statistics can be generated for the EPA data to indicate the quality of the data. Furthermore, the burden of proof lay with Kemron in conducting sampling and analytical activities of sufficient quality to document the actuality of bioremediation beyond doubt. The data collected by EPA's contractor were considered confirmatory, and were not designed to carry the same burden of proof.

Mr. Meiser's "note with some amusement" (pg. 3) regarding EPA's expenditures on innovative technologies at other sites is wholly inappropriate and irrelevant to the technical and regulatory issues present at this site.

Regarding the letter from Dr. James Novitsky dated October 22, 1993, several concerns come to mind related to his interpretation of data throughout the project. First, soil slurry studies conducted in Kemron's laboratories were not subject to EPA's scrutiny and approval process. Data submitted regarding these studies must be considered anecdotal. Data regarding replicates, surrogates, spikes, abiotic controls, and other quality control procedures were not submitted for EPA evaluation. The parenthetical note that the laboratory finding that "fungus additions had no apparent deleterious effects on the natural microbial community" was "an important finding" is not clear. No explanation is given of the relevance of any relationship between the supposed bacterial and fungal communities claimed as established.

Second, Dr. Novitsky's statements regarding USPCI's analytical abilities and the statement that all data from both laboratories "indicate residual PCBs well below the cleanup target of 25 ppm" are not relevant in their particulars. Since both EPA and Kemron data seemed to indicate that initial soil PCBs concentrations were below 25 ppm, it would be expected that residual PCBs would also be below 25 ppm. (Here, your dispute regarding the dilution rule may apply.) There is some discussion of "split, replicate samples." It would appear that actual splits were not obtained but I cannot be completely certain on this point. Regardless, the observation that EPA's data are uniformly higher in value than Kemron's data is not to suggest that one set is absolutely correct and the other set wrong, but rather to suggest that reliance exclusively on the Kemron set to conclusively demonstrate effective biological degradation of PCBs in the soil from this study is invalid. Other data from the site suggest that this conclusion is not unequivocal.

Third, I note again, as before, that the Kemron data would indicate that the control pile did not function as such. The purpose of the control pile is to document that non-biological effects on the concentration of PCBs (such as volatilization or mixing) are insignificant compared to the biological effects. If one were to interpret the results of the experiment using Kemron data exclusively, one would conclude that the whole attempt was meaningless as there was no control established. Final concentrations in the control pile are approximately the same as those in Test Pile #3.

Mr. Stephen L. Kenninger  
May 9, 1994  
Page 3

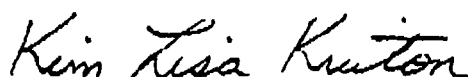
Just as Dr. Novitsky reiterates all his prior arguments in favor of an interpretation of bioremediation at the Columbus Scrap site, so I would reiterate all my former arguments against such an interpretation. I do not argue that bioremediation may have occurred. My firm conclusion is that the biological degradation of PCBs was not unequivocally demonstrated at this site. If one uses the legal phrasing, proof of biodegradation of PCBs was not offered "beyond all reasonable doubt."

At this point, it may be to your advantage to resolve this through a technical third party who holds no allegiance to either EPA or to Kemron, and one who has no conflict of interest (for example, someone trying to obtain a patent on a similar or competitive bioremediation technology). Offer both sets of data and other technical supporting documents (such as Kemron's work plans) and see how the evaluation turns out.

Alternatively, if it is true that the burden of proof rests with Kemron, the notes in the pages of the April 1994 edition of "PCB Update" you sent would be relevant. It states, in part, that "...data must show microbial involvement in the degradation process. EPA requires that a company devise a strategy that will demonstrate as unequivocally as possible that biodegradation has taken place and that the PCB molecule has not simply volatilized, sorbed, transported or attenuated by some other nonbiological or 'abiotic' reaction." (pg. 13). I note that the other PCB biodegradation projects described by companies with more bioremediation research experience than Kemron demonstrates usually ended in failure.

If I can be of further assistance, please contact me again. I can be reached at 617 926-0758 or 617 923-8758. I hope that you can resolve this project shortly as it has been continuing for some time. Feel free to use my previous communications with you in whatever light you find necessary.

Sincerely yours,



Kim Lisa Kreiton



**EXHIBIT D**

January 6, 1994

Mr. Steven L. Renninger  
U.S. Environmental Protection Agency  
25089 Center Ridge Road  
Westlake, OH 44145

Dear Steve

As requested, I have reviewed the work plan submitted by Kemron entitled "Remediation of PCB-Contaminated Soils, Columbus Scrap Facility, Columbus, Ohio" dated 8 December 1993. Following are my comments and concerns. I am submitting a copy of this letter to Ms. Naomi Barkley. As I am currently on a Leave Of Absence from the USEPA, you should confer with Ms. Barkley regarding your decision.

This work plan suggests sampling the existing contaminated soil pile at a rate of one sample per approx. 100 c.y. soil to determine present levels of contamination within the pile. The sampling procedure apparently involves taking one discrete sample at a depth of one foot from each 35' X 38' X 2'-deep block of soil on the surface of the existing soil pile. Based upon analytical results from this one sample, the block of soil will be labelled as Group I, II, or III, containing 10 mg/Kg, 10-100 mg/Kg, or > 100 mg/Kg respectively. Any block labelled as Group III will be subdivided into five sub-blocks of approx. 20 c.y. each, in the shape of a center, square sub-block and four trapezoidal shapes extending outward from each side of the center square. Only the four peripheral, trapezoidal sub-blocks will be sampled during a second round to determine their labelling as to contaminant level Group as above. All Group III soils will be excavated and removed to an approved landfill or incinerator off-site. Group II soils will be bioremediated as per the remaining plan. Group I soils will be removed from the pile and staged elsewhere on the site. They will receive no further treatment.

My first concerns involve this sampling and segregation scheme. (1.) A single sample removed from the center of each block to determine the concentration throughout the 100 c.y. block would seem to be oversimplification. I would prefer to see a compositing scheme wherein each block would be designated with an "X" pattern or a "Cross" pattern, alternately. A composite of five discrete samples taken from the center and the points of the "X" or the "Cross"

would be more appropriate. Furthermore, the workplan does not clearly state that new or freshly-decontaminated sampling and mixing equipment will be used for each block's sample. This should be clearly stated and strictly adhered to. These protocols are described in USEPA guidance documents for conducting soil sampling. I do not have the documents with me so I cannot give you a reference, but I'm sure your Regional or support people have access to them.

(2.) Is it within your authority to approve the "no further treatment" plan for soil blocks labelled Group I? I have no opinion on this matter. The two points-of-view I can see are that: A.) these soils were included "by accident" in the first place and should be left untreated on-site to save money; or B.) these soils may now have been contaminated by their proximity to known contaminated soils and should be treated separately by the bioremediation scheme, if approved.

(3.) I disagree entirely with statements on page 9 that "Group I contains...soil that has already experienced some natural bioremediation," and "It is...likely that at least some bioremediation has taken place." There is no hard evidence to support either of these statements. Their existence in the work plan is not detrimental, however, to the overall design.

(4.) I commend the work plan on its good use of prioritization in the sampling scheme. With the addition of the compositing procedure, I think the subdivision of Group III blocks in order to further correctly classify them and save costs is an excellent plan. The compositing scheme should be used in all five sub-blocks of the Group III labelling to confirm the actual final status of each sub-block. Although this will increase sampling and analytical costs somewhat, it would be more cost-effective than having the bioremediation scheme fail by having soils with too-high concentrations, or sending more soil than necessary for off-site disposal.

The bioremediation scheme described in the work plan is not very specific or detailed, but does seem to be generally in accordance with the treatability study. Removal of large scrap and debris, and decontamination "by removing all visible soil particles," is described. Tilling, nutrient addition, addition of wood chips as a bulking agent, and watering are briefly described. Weekly monitoring of moisture and water addition as necessary, and bi-weekly tilling in two directions followed by levelling are described. A field record including date, activity, temperature, and recent rainfall will be kept. Bioremediation will occur over a period of approximately 7 months.

(28 weeks) The bioremediation plot apparently will be co-located with the existing soil pile. Evidently, soils labelled as Group II will be tilled and smoothed in place, and the bioremediation activities will occur on the top 2-foot lift of the existing pile. Progress will be monitored by monthly sampling of five randomly-selected areas of this upper soil lift. When remediated, the 2-foot lift will be removed from the existing location. The entire procedure will then be repeated during a second year's activities for the lower 2-foot lift.

My concerns regarding the bioremediation scheme are that this is an example of over-simplification which may set a dangerous precedent in Region V and throughout the EPA.

(5.) The plan does not describe a liner or other system to collect leachate or runoff from the contaminated material while it is exposed.

(6.) The plan does not call for any verification procedures to provide firm evidence that biological degradation and not some other process is the source of any losses of PCBs.

(7.) The plan states that "both the laboratory and field treatability studies show that active PCB bioremediation can occur in site soils with minimum nutrient amendment" (pg. 9). To my thinking, no conclusive evidence has yet been presented to support this statement. References were made in previous documents to the bioremediation powers of materials collected in the leachate, and conclusions have been drawn based upon the apparent absence of other processes. As in the case of the notorious quicklime PCB "treatment," I must firmly reiterate that the alleged absence of other processes is not support of the proposed process. Sampling and analytical data-quality provided for the treatability study and prior, unreleased in-house work by Kemron are insufficient to support the ground-breaking claim of conclusive bioremediation of PCBs.

(8.) The proposed sampling activity is insufficient to determine treatment progress. Use of the described "X and Cross" system of acquiring composite samples from designated blocks is recommended, and far more than five random areas per month should be used to conclusively determine final progress. I recommend that approximately each 20 cu. y. of soil undergoing treatment be sampled at the beginning and the designated end of the period by means of the compositing procedure. If Kemron chooses to utilize fewer samples throughout the intermediate weeks for their monitoring purposes, I would concur. For the sake of data quality, however, a larger number of samples representing the whole treatment lift must be analyzed at the beginning and "end" of the

period. Region V should collect splits of all beginning and end samples, and may wish to collect splits of the intermediate, monitoring samples. These beginning and "end" samples should be taken by the same methods and from the same locations for adequate comparison of PCB concentrations at beginning and end.

(9.) The proposed analytical activities are in accordance with the prior recommendations from the treatability study work plan. The results obtained and presented by Kemron, however, did not allow for firm conclusions to be drawn about the results of that study. The analytical results from the subcontracted lab should always include the required quality control data, and when particular sampling rounds show quality control flags throughout the results, those sampling rounds should be discounted from the overall results. Many questions remain from the treatability study, and quality control on the analytical results was insufficient to resolve them. This must not be permitted during the actual treatment period.

(10.) The proposal that all samples must meet the 25 mg/Kg limit for two successive sampling rounds is appropriate for declaring the end of the study with the substitution of "consecutive" for "successive." Kemron may wish to follow its proposed 5-sample procedure for the intermediate, monitoring sampling, and declare the "end" of the treatment period when two such rounds are below the limit. The next round (being the third consecutive) would then proceed with the more expensive sampling following the "X and Cross" compositing scheme and with splits collected by or sent to Region V on each 20 c.y. of treated soil.

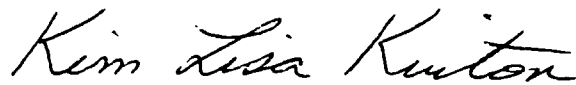
(11.) No provisions are made in case of failure of bioremediation to meet the clean-up standards or as an alternative to bioremediation.

This item was specifically discussed during our meeting with Kemron, CSX, and Columbus Scrap representatives. I recommend that, if the "bioremediated" soil lift fails to meet the declared clean-up standards within the proposed 7-month period, then the bioremediation scheme should be abandoned and all remaining soils be disposed of in an accepted and standard manner such as by off-site incineration. My reasoning for this recommendation is that this project, if successful, will require a minimum of two years to bioremediate two, 2-foot lifts in the existing soil pile. If the top lift is unsuccessful in the first year, there will be no substantial evidence to assume that the second year will offer any greater success, and the time limits as required by the consent order will certainly be drawing near. Furthermore, I am unable to determine whether or not Kemron explored other on-site treatment options such as thermal desorption or the K-PEG/A-PEG alternatives as discussed in our

meeting. These alternatives are known to work, where bioremediation is still largely unproven for PCB remediation.

Please contact me at 617/923-8758 if I can be of further assistance to you in this matter. I also refer you to Joan Colson, Randy Parker, and Paul de Percin in addition to Naomi Barkley in the USEPA office in Cincinnati.

Sincerely yours,

A handwritten signature in cursive script that reads "Kim Lisa Kreiton".

Kim Lisa Kreiton  
Environmental Engineer

cc: Naomi Barkley

**EXHIBIT E**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

**CONFIDENTIAL**

**MAY 10 1994**

REPLY TO THE ATTENTION OF:

SP-14J

MEMORANDUM

Subject: Columbus Scrap PCB Cleanup

From: Scott Cooper  
PCB Control Section

To: Steve Renninger  
Emergency Response Section 1 (HSE-GI)

I am responding to questions you asked concerning the TSCA dilution rule and how it would apply to the bioremediation of a stock pile of soil contaminated with PCBs at the Columbus Scrap site, Columbus, Ohio.

It is the PCB Control Section's position that PCB contaminated material must be characterized for disposal in situ. This position is based on the TSCA dilution rule (40 C.F.R. §761.1(b) which states that no provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise provided. TSCA regulates the disposal of PCBs at concentrations of 50 ppm or greater (40 C.F.R. §761.60). Spills and other uncontrolled discharges of PCBs at concentrations of 50 ppm or greater constitutes the disposal of PCBs (40 C.F.R. §761.60(d)(1)). Under the dilution rule all PCB contaminated soil down to the appropriate cleanup level must be treated for purposes of disposal as if it were at the concentration of the spill source; otherwise, the disposal provisions of TSCA could be avoided by spilling PCBs. Allowing material containing PCBs to be characterized for disposal following excavation and stock piling provides an opportunity for clean material and PCB material at low concentrations to be mixed with higher concentration material, in effect resulting in dilution.

TSCA requires that PCB waste be placed in containers and stored for disposal in accordance with 40 C.F.R. §761.65. At CERCLA sites, bulk storage of PCB contaminated soil in stock piles may be allowed, if the soil is contained by placement on a tarp and covered by a second, securely weighted tarp. The soil pile may be uncovered to add additional PCB material as long as dust control measures are employed, and the pile is recovered at the end of each work day. The weighted tarps constitute a PCB container as defined at 40 C.F.R. §761.3. It is TSCA policy that



whenever clean material is added to a PCB container that material also becomes PCB waste.

Regarding the bioremediation of the soil pile, the responsible party must show as unequivocally as possible that bioremediation has taken place, and that reductions in soil PCB concentrations are not due to some nonbiological action such as volatilization, sorption, or transportation, etc. (see the attached: **PCB Update, The Newsletter of PCB Regulators, April, 1994**). It is my understanding that CSX Transportation, Inc.'s original bioremediation proposal was for an application of white rot fungus, which all parties subsequently have agreed did not conclusively show destruction of PCBs. CSX now argues that PCBs in the soil pile have been degraded by naturally occurring soil bacteria. Under a TSCA cleanup, CSX would have been required to apply for a Research and Development (R&D) Approval for the white rot fungus treatment. This R&D Approval would have required a bench scale study which, if successful, would be followed by a pilot field study. As part of the R&D Approval process, CSX would have been required to submit a well designed scientific experiment which, among other things, would set out the procedure for determining whether reduction in PCB concentrations in soil were due to fungal action rather than various other factors. It is my understanding that no similar scientific experiment was designed for naturally occurring bacteria. Under TSCA CSX would be required to submit a new R&D application for the naturally occurring site bacteria. TSCA program guidance on the bioremediation of PCBs can be found in **Guidelines for Applications for PCB Disposal Approvals for Biological Degradation Processes, January 21, 1993**, or by calling Joan Blake (OPPT) at : (202) 260-6236.

If biological reduction of PCBs in the soil pile can not be determined to have occurred, then the TSCA disposal status of this soil, based on the previous in situ sampling, has not changed, and any material added to the pile is regulated as TSCA waste, regardless of subsequent soil test results.

I have attached a number of TSCA program policy statements and communications concerning the application of the TSCA dilution rule. If you have questions concerning this memo or wish to discuss the attached documents, please phone me at: (312) 886-1332.

#### Attachments

cc: John Connell  
Mony Chabria

**CONFIDENTIAL**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, DC 20460

JUN 20 1990

OFFICE OF  
PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PCB Contaminated Soils between 2 and 50 ppm

FROM: Tony Baney, Chief *Tony Baney*  
Chemical Regulation Branch

TO: Robert Murphy, Chief  
Pesticides and Toxics Branch, Region VI

We have received a request from Region VI regarding the regulatory status of PCB contaminated soils at concentrations between 2 ppm (the practical limit of quantitation) and 50 ppm. The question is whether or not such material is regulated for disposal under 40 CFR Part 761.60.

40 CFR Part 761.1(b) states that "No provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise specifically provided". Therefore, if the original PCB material was greater than 50 ppm, the PCB contaminated soil is regulated for disposal at the concentration of the original PCB material. This material is not regulated for disposal under 40 CFR Part 761.60 if the original concentration of the PCB material that was mixed with the soil was less than 50 ppm.

cc: Regional Branch Chiefs I-X

RECEIVED  
JUN 21 1990  
PESTICIDES AND TOXIC  
SUBSTANCES BRANCH



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUL 31 1990

OFFICE OF  
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: PCB Contamination at Superfund Sites -- Relationship of  
TSCA Anti-Dilution Provision to Superfund Response  
Actions

FROM: Don R. Clay *[Signature]*  
Assistant Administrator  
Office of Solid Waste and Emergency Response

Linda J. Fisher *[Signature]*  
Assistant Administrator  
Office of Pesticides and Toxic Substances

TO: Regional Administrators  
Regions I - X

Purpose

This memorandum is to explain how cleanups of PCB wastes selected by EPA under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA or "Superfund") should comply with the PCB regulations promulgated under the Toxic Substances Control Act (TSCA).

Background

The PCB rules require disposal in a TSCA incinerator of PCBs at concentrations of greater than 50 ppm, except that:

- Mineral oil dielectric fluid and other liquids contaminated with between 50 and 499 ppm of PCBs may be disposed of in a TSCA incinerator, TSCA landfill, or a high efficiency boiler. 40 CFR 761.60(a)(2) and (3). (Liquids with 500 or greater ppm PCBs must be disposed of in an incinerator.)
- Non-liquid PCBs in the form of soil, rags, or other debris, that contain PCBs in concentrations of 50 ppm or greater, may be disposed of in either a section 761.70 incinerator or a section 761.75 chemical waste landfill. 40 CFR 761.60(a)(4).

- Dredge material and municipal sewage treatment sludges (at any concentration of 50 ppm PCBs or greater) may be disposed of in a section 761.70 incinerator, a section 761.75 chemical waste landfill, or by a method approved by the Regional Administrator. 40 CFR 761.60(a)(5).

- Also, any of these categories of materials may be disposed of under an approved alternative disposal technology with the destruction efficiency equivalent to incineration. 40 CFR 761.60(e).

In order to prevent parties from attempting to dilute PCB concentrations to avoid these disposal requirements, the regulations specifically state that "no provision specifying a PCB concentration may be avoided as a result of any dilution" (40 CFR 761.1(b)). This is generally known as the "anti-dilution" provision.<sup>1</sup>

#### Relationship Between CERCLA and the PCB Rules

In selecting response action strategies and cleanup levels under CERCLA, EPA should evaluate the form and concentration of the PCB contamination "as found" at the site, and dispose of it in accordance with the requirements of 40 CFR 761.60(a)(2)-(5) and (e), outlined above. Cleanup levels and technologies should not be selected based on the form and concentration of the original PCB material spilled or disposed of at the site prior to EPA's involvement (i.e., the anti-dilution provision of the PCB rules should not be applied). Because EPA comes to a site under the CERCLA after the pollution has already occurred, and is acting under statutory mandate to select a proper cleanup level (regardless of who caused the pollution and who will clean it up), EPA is not subject to the anti-dilution provision at CERCLA sites when it selects a remedy. However, the Agency may not further dilute the PCB waste in order to avoid the TSCA PCB disposal requirements of 40 CFR 761.60(a)(2)-(5) as part of a CERCLA cleanup.

More detailed guidance on compliance with PCB requirements at Superfund sites will be issued shortly. Personnel in the Office of Toxic Substances (OTS) will be available to provide consultation on this guidance. To be consistent with the current process for responding to questions concerning PCB disposal, please direct any inquiries to Regional Coordinators in the Hazardous Site Control Division of the Office of Emergency and Remedial Response (OERR) or CERCLA Enforcement Division of the Office of Waste Programs Enforcement (OWPE); OERR/OWPE will then coordinate with OTS.

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<sup>1</sup> In an explanatory note following 40 CFR 761.60 (a)(4)(ii)), the Agency has added that "liquid PCBs shall not be processed into non-liquid forms to circumvent the high temperature incineration requirements."

OCT 7 1983

Mr. Thomas S. West, Esq.  
DeGraff, Foy, Conway, Holt-Harris & Healey  
90 State Street  
Albany, New York 12207-1780

Dear Mr. West:

This is in response to your letters of August 10, 1983 and September 20, 1983, regarding the disposal of sludge contained in Tank #1 of Industrial Systems, Inc. This tank is located at Northeast Solite Corporation's facility in Mount Marion, N.Y.

In your letters, you have indicated that Tank #1 originally contained over 27,000 gallons of fuel and sludge. You further stated that the fuel in Tank #1 contained PCBs at levels between 50 and 500 ppm. This PCB contaminated fuel was sent to Ensco for disposal. The remaining sludge, some 13,000 gallons, was analyzed and found to contain varying levels of PCBs less than 50 ppm. You would like to know whether the sludge can be disposed of as a non-PCB since it contains less than 50 ppm PCB.

Since Tank #1 originally contained PCBs at levels between 50 and 500 ppm, the entire contents of Tank #1 including the sludge must be disposed of as PCBs in accordance with the PCB disposal regulations found in Subpart D, 40 CFR Part 761.60. The PCB Rule at 40 CFR Part 761.1(b) states that any chemical substance and combination of substances that contain less than 50 ppm because of any dilution, shall be included as PCBs.

If you require any further information or assistance, please contact David Hannemann of my staff at (202) 382-7849.

Sincerely yours,

A. E. Conroy II, Director  
Compliance Monitoring Staff  
Office of Pesticides and Toxic Substances

TSCA COMPLIANCE PROGRAM POLICY No. 6-PCB-10

First In/First Out Standard for Meeting the  
PCB One-Year-Storage-for-Disposal Requirement

TSCA Section: 6(e)

Issue:

How will EPA apply the one-year-storage-for-disposal requirement of 40 CFR Section 761.65(a) to facilities that use bulk storage tanks to hold PCBs that were placed into storage for disposal on different dates?

Policy:

EPA will consider that a facility has complied with 40 CFR Section 761.65(a) if its records demonstrate that, in any 12 month period, the quantity of PCBs removed and disposed of from each of the facility's bulk storage containers equals or exceeds the quantity of PCBs that were placed into the container for storage prior to disposal during the same 12 month period.

Discussion:

Section 761.65(a) of the PCB regulations provides that "any PCB Article or PCB Container stored for disposal after January 1, 1983, shall be removed from storage and disposed of . . . within one year from the date it was first placed into storage."

On August 16, 1983, EPA issued TSCA Compliance Program Policy No. 6-PCB-7, which provided that

the date used as the starting date for the one year storage for disposal deadline on a PCB article or PCB container prior to physical separation shall be the earliest date of the PCB items in a container. Such PCB items must be disposed of within one year from the earliest dated item.

EPA has received inquiries from operators of bulk PCB storage and disposal facilities regarding the application of Policy No. 6-PCB-7 to their operations. Their concern stemmed from the possible interpretation that the policy requires all bulk storage tanks containing PCBs to be emptied and decontaminated on an annual basis, and all removed PCBs disposed of at that time in accordance with the disposal requirements of the PCB regulations.

The purpose of the one-year-storage-for-disposal requirement is to ensure the prompt disposal of PCBs removed from service. EPA has determined that this purpose will be met without undue hardship on the regulated community if EPA adopts a "first in/first out" (FIFO) policy for facilities whose operations depend upon the bulk storage of PCBs. That is, EPA will consider that a facility has complied with 40 CFR Section 761.65(a) if its records demonstrate that, in any 12 month period, the quantity of PCBs removed and disposed of from each of the facility's bulk storage containers equals or exceeds the quantity of PCBs that were placed into the container for storage prior to disposal during the same 12 month period.

This policy retains the allocation of enforcement liability provided in TSCA Compliance Program Policy No. 6-PCB-6. That is, a generator may avoid liability for a failure to meet the one-year-storage-for-disposal deadline of 40 CFR Section 761.65(a) only if PCBs were delivered to a disposal facility within nine months after the actual or imputed date on which they were placed in storage for disposal. Likewise, a disposal facility may avoid such liability only where PCBs were disposed of within 3 months after the date on which they were delivered for disposal.

The FIFO system will require the use of inventory controls and recordkeeping to ensure the complete tracking of PCBs to the date on which they were first placed into storage for disposal. Such recordkeeping requirements are contained in 40 CFR Section 761.65(c)(8). Compliance with this provision should be assessed routinely during inspections.

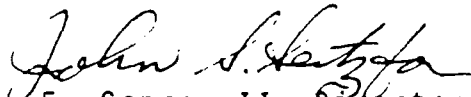
Under the FIFO system, PCBs in concentrations greater and less than 500 ppm may not be mixed in the same tank in order to avoid the more stringent disposal requirements applicable to PCBs of concentrations greater than 500 ppm. Section 761.60(g)(2)(ii) of the regulations provides that, where such mixing occurs, the resulting mixture "must be considered as having a PCB concentration of 500 ppm or greater" for disposal purposes.

Similarly, PCBs in concentrations greater and less than 50 ppm may not be mixed in the same tank in order to avoid the disposal requirements applicable to PCBs in concentrations of between 50 and 500 ppm. Section 761.1(b) of the regulations provides that any such mixing will produce material that, regardless of its actual PCB concentration, must be treated as if it contained greater than 50 ppm PCBs.

See Also: TSCA Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7.

References: 40 CFR Part 761.

Key Words: PCB, storage, disposal.



John S. Conroy II, Director  
Office of Compliance Monitoring  
Office of Pesticides and Toxic Substances

**AUG 13 1985**

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Date



**EXHIBIT F**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

JAN 10 1994

SP-14J

MEMORANDUM

Subject: TSCA PCB Control Section Initial Comments on the  
December 8, 1993 Work Plan for Remediation of PCB  
Contaminated Soils at the Columbus Scrap Facility,  
Columbus, Ohio.

From: Scott Cooper *SC*  
PCB Control Section

To: Steve Renninger  
Emergency Response Section 1 (HSE - GI)

It is the PCB Control Section's position that PCB contaminated material must be characterized for TSCA disposal in situ. This position is based on the TSCA PCB dilution rule (40 C.F.R. §761.1(b)) which states that no provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise provided. Under the dilution rule, clean soil which is placed in a container or pile with TSCA regulated soil also becomes regulated for TSCA disposal. If PCB contaminated material having different TSCA disposal requirements is placed in a common container or pile, the dilution rule would require that all that material be disposed in accordance with the most stringent TSCA disposal requirement. The PCB disposal rules at 40 C.F.R. §761.60 (a)(4) set out disposal requirements for contaminated soil, which must be disposed in a TSCA approved incinerator or a TSCA approved chemical waste landfill. In addition, under 40 C.F.R. §761.60 (e), PCB contaminated soil may also be disposed by an alternative method equivalent to incineration and approved by the Regional Administrator. As you know, on-site disposal of PCBs at CERCLA sites does not require a formal TSCA disposal approval (permit), but the disposal method employed on-site must comply with the TSCA disposal rules, as ARARs.

The Remediation Work Plan proposes to sample the soil stock pile and characterize the soil for PCB disposal by three groupings, non-regulated, acceptable for bioremediation, and TSCA landfill. This procedure does not comply with the PCB dilution rule. All of the soil in the stock pile is regulated for TSCA disposal based on the in situ sampling conducted in accordance with the revised Site Characterization Work Plan, approved on June 10,

1991. Any clean soil which may have been added to the stock piles must also be considered as TSCA waste.

Based on our telephone conversation on January 7, 1994, and on the inconclusive results of the bioremediation study, the only viable option for the soil stock pile is off-site disposal in a TSCA approved chemical waste landfill.

**EXHIBIT G**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
RISK REDUCTION ENGINEERING LABORATORY  
CINCINNATI, OHIO 45268

DATE: August 9, 1993 (for FAX transmittal)

SUBJECT: Review of "Results and Discussion" (pp. 8-14) from  
KEMRON Final Report  
Columbus Scrap Yard Treatability Study

FROM: Kim Lisa Kreiton *KLK 8/9/93*  
Environmental Engineer, SDEB

TO: Steve Renninger  
OSC, Region V

I have reviewed the pages you faxed to me from the KEMRON final report for the fungal treatability study conducted at the Columbus Scrap Yard site. In general, I am pleased to see that the conclusions (in the Discussion section) indicate that KEMRON believes PCB degradation was not necessarily due to the effects of the application of white rot fungus. While I differ with their interpretation of a few points, the overall result is consistent with my interpretation of the data forwarded to you in my memo of August 2, 1993.

The specific points with which I have trouble are as follows. Pg. 12 states that "...sharp decreases would have been noted after the chip addition..." in regards to sorption of PCBs into the woodchips. This is not necessarily true. Sorption/desorption processes can take a very long time to achieve equilibrium. Sorption of contaminants into organic material is a common phenomenon in nature, and might not have resulted in the "discontinuity" predicted in the report. Pg. 12 states that the level of PCBs measured in the woodchip samples "...is consistent with the volume of soil clinging to the wood chip samples." There is no concrete data to support this statement. The volume of soil clinging to wood samples was not measured, to my knowledge. Pg. 9 describes and pg. 13 discusses the results of some leachate experimentation. The discussion of "...PCB-degrading activity [which] was noted in the leachate..." is anecdotal. No replicate tests were performed and the experiment itself was not described or approved in prior test plans. Pg. 13 also describes results of fungal strain isolation and identification. No specific data are presented to document the descriptive material. Likewise, pg. 13 states "...the organic content of the soils is probably relatively high relative to microbial requirements..." Again, no specific data on the soil organic content are presented, nor are data on microbial requirements. Finally, it would appear that a "not" is missing on pg. 14. The sentence now reads, "Although the enhanced effect of white rot fungi could be conclusively proven, the naturally-occurring microbial community which may even contain native white rot fungi, was capable of significant bioremediation." I believe that KEMRON meant to say "...could not be conclusively proven..."

Let me know if there is more I can do for you regarding this project.

cc: Joan Colson - EPA Technical Support Program (MS-489)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
RISK REDUCTION ENGINEERING LABORATORY  
CINCINNATI, OHIO 45268

DATE: November 13, 1992

SUBJECT: Review of Revised Workplan and Data for CSX/Columbus Scrap Site  
Submitted by KEMRON on 30 October 1992

FROM: Kim Lisa Kreilton *KLK 11/13/92*  
Environmental Engineer, SDEB

TO: Steve Renninger  
OSC, Region V

The review of the revised workplan and appended data submitted by KEMRON was completed by myself and another EPA/RREL employee. In general, our findings are as follows:

- The newly provided information provides no data or evidence to support the claim that the fungal enzymes will be carried vertically down the soil pile in sufficient quantity and at a useful rate. Some enzymes are very chemically stable while others are extremely fragile. It has not been established that the fungal enzymes are rigorous enough to withstand the soil environment.
- There is no evidence presented which seems to demonstrate conclusively that the fungus-produced enzymes are the agent responsible for PCB degradation in the laboratory tests.
- Specific information was not provided regarding the laboratory tests: quantity of soil per flask; quantity of water or moisture per flask; relative light levels.
- The suggestion of further acceleration of PCB degradation by a second addition of wood chips is not supported by experimental evidence but is a supposition based upon almost total degradation of the initial wood chip supply.
- A short report in The Hazardous Waste Consultant (May/June, 1992) indicated successful treatment of PCBs using various strains of *P. chrysosporium* by C-E Environmental, Inc. (Roseland, NJ) and Mycotech Corporation (Butte, MN). This brief statement indicates some special conditions required for the successful growth of the fungal inoculum, and soil parameters which may affect the success of remediation. No knowledge of these special growth or soil conditions has been evident; these conditions may be critical to the success of the overall remediation. (For example, optimal results were obtained at temperatures above 100° F) the treatability study proposes to maintain the air temperature within the protective structure at 60° F.
- The addition of the soil-only, uninoculated control plot, and the soil-plus-woodchips control plot is noted, and will help to determine the relative effectiveness of any fungal remediation.

While the overall success of this method of remediation remains highly speculative, the treatability study should provide some measure of the probable success. Inconclusive results from the treatability study should be viewed negatively as scale-up from laboratory and pilot work is proving to be a major difficulty in successful implementation of fungal remediation methods.

cc: Joan Mattox

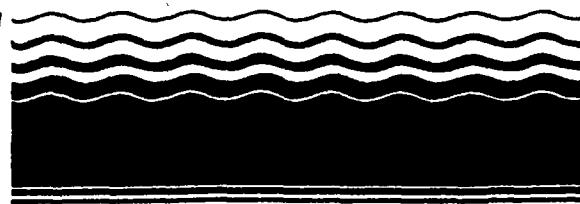
**EXHIBIT H**





# SITE

SUPERFUND INNOVATIVE  
TECHNOLOGY EVALUATION



## Demonstration Bulletin

### Fungal Treatment Bulletin

USEPA-RREL/USDA-FPL

**Technology Description:** Fungal Treatment is a bioremediation process utilizing white-rot fungi as a means of destroying organic contaminants in soils. The Fungal Treatment technology was developed jointly by the Forest Products Laboratory (FPL) of the U.S. Department of Agriculture's Forest Services in Madison, WI, and the U.S. EPA Risk Reduction Engineering Laboratory's Biosystems Branch. The Fungal Treatment demonstration was conducted on the site of a former wood treating facility, the Brookhaven Wood Preserving (BWP) in Brookhaven, MS. The goal of this demonstration was to determine the use of Fungal Treatment to destroy pentachlorophenol (PCP) and select polynuclear aromatic hydrocarbons (PAHs: creosote constituents) in contaminated soil.

White-rot fungi are the major degraders of lignin, a polymeric component of wood which is resistant to biodegradation. Interest in these fungi for biotechnological applications has increased during the past decade, spurred by the ability of these organisms to degrade a wide variety of hazardous compounds (including PCP and PAHs). The fungal treatment process involves inoculation of the contaminated soil with selected fungal strain(s) followed by addition of nutrients (if needed), irrigation, and aeration of the soil through tilling/cultivating to provide optimal fungal growth conditions. Inoculation is accomplished by physically mixing the soil and the inoculum. Mixing can be performed in solids mixing equipment, or in-situ by placing the inoculum on the contaminated soil and tilling until the two are thoroughly mixed. In the case of ex-situ mixing, the soil-inoculum mix must then be spread over the ground. Land farming procedures such as irrigation, aeration and nutrient addition are then implemented periodically to sustain the fungal activity within the soil matrix. As a result of the fungal activity, the hazardous compounds are transformed and become irreversibly bound to soil organic matter, in which state they are not biologically active and thus do not present toxicity problems. The fungal treatment can take several weeks to several months to achieve the desired level of contaminant reductions.

Two species of white-rot fungi, *Phanerochaete chrysosporium* and *Phanerochaete sordida*, have exhibited the best growth potential in soil contaminated with wood preserving wastes. Studies conducted by the developer have indicated that lignin-degrading enzymes generated by these fungal species are capable of oxidizing and detoxifying some normally recalcitrant PAHs. In addition, these fungal species have been known to detoxify phenolic compounds (PCP is one of them) by methylation of the phenolic group. The methylated product is susceptible to further transformation by the fungi.

Prior to treatment, a treatability study either in the field or in a laboratory is performed using representative contaminated soil. Based on the treatability data, the developer will determine: (1) the applicable fungal species, (2) the inoculum loading level, (3) length of treatment time, and (4) the need for nutrients or other soil supplements.

**Waste Applicability:** This Fungal Treatment has been tested for treatment of soils contaminated with organic wood preserving compounds such as pentachlorophenol (PCP) and select polynuclear aromatic hydrocarbons (PAHs) found in creosote. Warm temperatures (greater than 80°F) and sufficient moisture (greater than 30%) in the target matrix are desirable for the optimal growth of the fungus and, thus, for the degradation of the contaminants.

**Demonstration Results:** Over a 20-wk period, from June 1992 through November 1992, the Fungal Treatment technology was tested under actual field conditions. The test matrix was produced from excavated wood preserving wastewater treatment sludges from unlined onsite surface impoundments. This soil-like material was screened to remove solid debris larger than three inches in size, and further mixed/diluted with clean soil to bring the PCP concentration down to an acceptable level for fungal growth and viability. This test soil was then used in the test and the two control plots as described below.

On the BWP site a Test Plot and two Control Plots, A and B, were constructed. In Control Plot B, the test soil mix only was homogenized and placed as a 10-in. bed on top of a sand layer. In Control Plot A, the test soil mix was homogenized with the sterile (i.e., non-inoculated or non-fungal) spawn material at a 10:1 w/w ratio and placed as a 10-in. bed on a sand layer. In the Test Plot, the test soil mix was homogenized with the fungal inoculum at a 10:1 w/w ratio and placed as a 10-in. bed on a sand layer. The Test and the two Control Plots were rototilled/cultivated about once a week over the duration of the study. Soil temperatures were recorded on a daily basis. Moisture content of the soil from each of the plots was determined on a weekly basis. If the moisture content in a plot dropped below the target level, it was irrigated with leachate collected from the same plot and/or with the municipal tap water. Soil samples from each of the plots were collected at the start of the study, and then at the end of the 5th, 9th, and 20th weeks of the study.

Data from the Demonstration are undergoing final review. Some key initial findings are as follows:



- Levels of PCP and the target PAHs found in the underlying sand layer and the leachate from each of the plots were insignificant, indicating low leachability and loss of these contaminants due to periodic irrigation of the soil and heavy rainfall.
- Levels of PCP, the target PAHs, and dioxins in the active air samples collected during the soil tilling events were insignificant, indicating a very low potential of air-borne contaminant transport as a result of Fungal Treatment activities.

An Applications Analysis Report and a Technology Evaluation Report describing the complete Fungal Treatment SITE demonstration will be available in Summer of 1993.

The developers collected data independently and will produce results via other publications.

\*U.S. Government Printing Office: 1993 — 750-071/80011

#### For Further Information:

**EPA Project Manager:**  
Kim Lisa Kreiton  
U.S. EPA  
Risk Reduction Engineering Laboratory  
26 West Martin Luther King Drive  
Cincinnati, OH 45268  
(513) 569-7328

**Developer:**  
EPA/Biosystems: John Glaser  
(513) 569-7568  
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(608) 231-9200

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